

Desktop Publishing with the AMSTRAD PCW



Desktop Publishing with the Amstrad PCW

Michael Milan

PUBLISHED BY NCC PUBLICATIONS

British Library Cataloguing in Publication Data

Desktop publishing with the Amstrad PCW.

1. Desktop publishing 2. Amstrad PCW
8256 (Computer) 3. Amstrad PCW 8512
(Computer).

070.5'028'5416 Z249.3

ISBN 0-85012-636-3

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First published in 1987 by:

NCC Publications, The National Computing Centre Limited, Oxford Road, Manchester M1 7ED, England.

Typeset in 10pt Times Roman by Bookworm Typesetting, Manchester; and printed by Hobbs the Printers of Southampton.

ISBN 0-85012-636-3

Acknowledgements

I am grateful to the following companies who supplied review software:

Arnor Ltd
Database Software Ltd
Digital Research (UK) Ltd
Electric Studio Ltd
Mirrorsoft Ltd
Tasman Software Ltd

My son Stephen wrote the BASIC program Noticeboard in Appendix 2.
Both he and my other son Christopher created some of the illustrations.
Thanks also to Marcia Lamb at NCC for editing the text.

All trademarks mentioned in the book are acknowledged.

Michael Milan.

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1 What Is Desktop Publishing?

BEYOND THE WORD PROCESSOR

If you own (or are thinking of owning) a word processor, then it can be assumed that you want to present words and ideas on paper. The Amstrad PCW 8256/8512 has brought the power and the pleasure of word processing to many thousands of people who could not previously have afforded it. But it is human nature never to be satisfied with what we have, to want always to improve still further.

The word processor allows you to arrange your ideas, to correct errors without re-typing (and creating more errors in) the rest of the text and to modify text with the minimum of effort. It also allows you to print out your text in a variety of ways, with different type styles and in different formats. Furthermore you can print out the same text in many different ways until you are satisfied with the presentation.

DESKTOP PUBLISHING

Desktop publishing takes this a stage further: as well as arranging your ideas, it also allows you to arrange your text and your illustrations on the page for the most effective presentation. Desktop publishing is usually taken to refer to hardware and software packages which incorporate everything that is necessary to produce text and illustrations through the computer. But this book will take a less purist approach. It will suggest ways of enhancing *any* material produced on your Amstrad PCW intended for duplication, the inclusion of illustrations, or the production of visual aids. In a later chapter we will look at integrated DTP packages for your Amstrad, but throughout the book we will look at ways of embellishing your output with whatever methods are available and appropriate.

THE AMSTRAD PCW

The Amstrad PCW is a complete word processing system in a single box. It consists of a processor, green screen monitor, disk drive(s) and a printer (Figure 1.1). An essential ingredient of any word processor is software, and a very powerful program, *LocoScript*, is included in the package. The machine and the software are designed to work together, and although there were some problems and shortcomings with the early versions of *LocoScript*, the combination is very successful. The machine is also a relatively powerful computer, working under the very well-established operating system, CP/M. There are now hundreds of programs available for the PCW, and it has become very popular with small businesses.

The disk storage medium is the slightly unusual 3" compact floppy disk designed by Hitachi. Although it is perfectly satisfactory, Amstrad is the only manufacturer still to support this standard. The disks are widely available, but rather more expensive than either the 5¼" floppy disk, or the 3½" type designed by Sony.

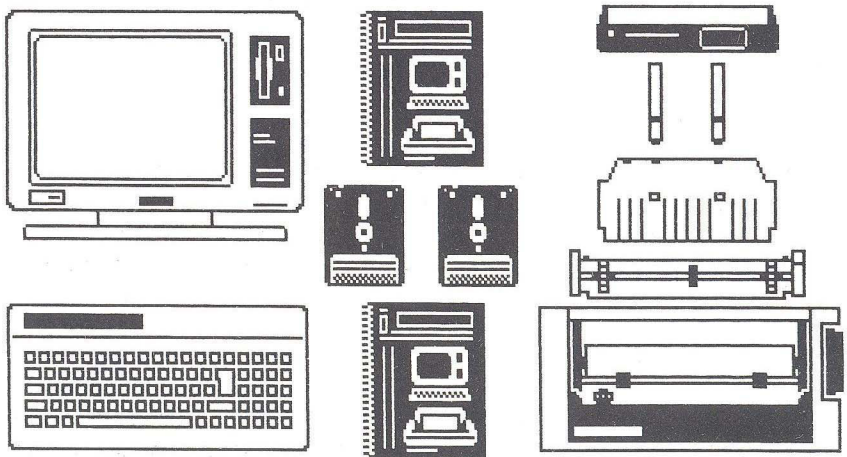


Figure 1.1 The PCW 8256

The PCW was first available as a single disk drive machine, the PCW 8256, with 256 Kbytes (KB) of RAM (random access memory). Shortly afterwards a double disk drive model, the PCW 8512, with 512 KB of memory was introduced. The second disk drive is very useful,

particularly as it allows twice as much information to be stored on a floppy disk. On the top drive the disk capacity is 173 KB per side on disks that can be turned over, giving a total capacity per disk of 346 KB. On the second drive, both sides of the disk are treated as one surface by the computer. The information is recorded at double density, and the total capacity per disk is 706 KB, almost enough to store the contents of this book – *twice over*. However, the two drives are partly incompatible, as disks recorded in the second (lower) drive cannot be read in the first. At the time of writing it was expected that the twin disk drive model would be discontinued by Amstrad, although the single drive model could still be upgraded by owners wishing to do so. In addition a new model would be introduced with a new printer and a Centronics output as standard, so that with this model the Centronics interface mentioned in this book would not be necessary to drive external printers. For desktop publishing applications, the second drive is certainly very useful for the extra capacity, as is the extra memory.

When it comes to desktop publishing, the Amstrad word processor has its advantages and its drawbacks. So that the rest of the book may be read in context, it would be as well to mention them here.

Plus Points

High Availability

There is no doubt that as a word processor, the PCW has been a resounding success; the number of machines that have been sold is an eloquent testament to that. Price has had a lot to do with it. The fact that there are so many of these machines in the hands of people who want to create text makes it a potential tool for desktop publishing.

Comprehensive Equipment

Every PCW comes complete with a processor, screen, keyboard, at least one disk drive and a printer. In short, everything that you need for desktop publishing.

Standard Equipment

All PCWs are substantially the same, making it easy to offer software that needs no individual installation in order to work correctly, thus making it relatively easy for anyone to use.

Minus Points

Relatively Slow

The Amstrad PCW uses a Z80 microprocessor, designed in the 1970s. In the world of computing this makes it an old design. Of course, the Z80 still works as well as it ever did, but desktop publishing needs a lot of processing power. As a result, the PCW is rather like a heavily laden car struggling to get up a steep hill. It can do it in the end, but it needs to stay in first gear, and so does not get there very fast.

Not Much Memory

“What’s this?” I hear you cry, “at least 256 K, if not 512 – that should be enough!”. Unfortunately, not all that memory is available to the processor at any one time. Desktop publishing packages build up an image of the text, and any graphics in the computer’s memory, before printing it out onto paper. The lack of memory means either cutting down on the area that can be worked on at any one time, or else reducing the overall resolution of the image. The result of the latter is that print fonts are not particularly legible.

Dot Matrix Printer

In fairness to the printer bundled with the PCW, the quality of the printout is as good as most printers costing far more. The dot matrix printer is very versatile, allowing graphics to be printed as well as several different character styles, but the resolution is limited.

For an outlay of many thousands of pounds you can get a super DTP setup (and let’s face it, the best ones do not use Amstrads). But we will approach the problem from the other end: if you have an Amstrad word processor (or if it is all that you can afford), then you will want to get the most effective results out of it, even if it means scissors and glue. That is what this book will help you to do.

Desktop publishing is useful for:

Societies

Fanzines

Fund raising

Newsletters

Notices

Tickets

Small companies

Brochures

	Catalogues
	Information sheets
	Instructions
	Forms design
<i>Schools</i>	Newsletters
	Notices
	Lesson notes
	Visual aids
<i>Churches</i>	Parish magazines
	Notices
<i>Individuals</i>	Advertisements
	Invitations
	Menus
	Theses

The Amstrad word processor is a powerful tool for these purposes (as well as many others).

THIS IS THE AGE OF PRESENTATION

These days we are constantly being bombarded with information, whether we want it or not. Many different people are after our attention. Perhaps they are trying to sell us something. Perhaps they are trying to persuade us to their point of view. Documents are still the most common, and very effective, means of communication between people. In 1987 Rank Xerox Ltd calculated that 10% of all corporate revenues were spent on publishing activities of one sort or another. The purpose of documents is to inform, educate and stimulate action. Advertisements, circulars and newsletters all compete for attention. The ones that get it are those that are most effectively presented. Pupils and students will gain knowledge more effectively from clearly and attractively produced notes. This book is about how to use your Amstrad, and any other available techniques, to improve the presentation of your documents, because if you want to be part of the information revolution, then you will only be successful if your printed material can stand up to all the competition for attention. It must have clarity, comprehensibility and impact.

ENHANCING THE PRESENTATION OF YOUR OUTPUT

With your Amstrad word processor you already have a powerful tool for

the creation and editing of text. There are also many different ways in which the final text can be laid out. There are several different sizes and styles of typeface. You can vary the line length, the line spacing, and the line pitch. However, when you have finished, the chances are that your output will still look like an ordinary page of typewriting, a large slab of unrelieved text. If it looks daunting to read, only the people who really want to will take the trouble to do so. For the rest, it will remain unnoticed, or end up in the waste-paper basket. In this book we will look at various ways of enhancing the presentation, making your output more attractive to look at, and easier to read. There are many ways of doing this; using the LocoScript word processing package supplied with the Amstrad together with traditional paste-up techniques, special word processor programs which allow additional features, BASIC programs that you can enter into the Amstrad yourself, through to special desktop publishing packages. We will also look at ways of incorporating illustrations into the text: illustrations either drawn by hand, created electronically, or even photographs.

PROVIDING VISUAL VARIETY

So what sort of things can we do to make the output look more attractive to the potential reader? A little visual variety will help in several ways. It can help to show up important points. Headings should stand out clearly. The reader can be alerted to changes of topic with a new paragraph, perhaps with a new heading. Specially important words, or even sentences, can be made to stand out by printing in bold or italic typeface.

Long lines of type can be very tiring to read because the eye has to scan across the page. This can be relieved by breaking the text into several narrower columns across the page. Unfortunately, printing out in multi-columns is not something which can be done directly with LocoScript, so if you want to do this you will need to paste up your copy, as outlined in Chapter 5, or use a different word processing package such as Protext (see Chapter 3), or use a desktop publishing package (see Chapter 7).

A lot of impact can be provided by incorporating illustrations into the text. These could be hand-drawn illustrations, computer-generated graphics, or photographs. How you go about any of these will depend on what other techniques you are using, the methods you will be using for replicating the results, and what other facilities you have available.

Do not imagine that successful desktop publishing is easy just because you have a word processor, or even a desktop publishing software package. Desktop publishing has been going on ever since monks illustrated their manuscripts in the dark ages, and *they* did not have much equipment.

For successful desktop publishing, two things are important: content and layout. Your Amstrad will help you to *refine* the content, but it will not write it for you. Whether you arrange your layout by simply typing it, pasting it up, or using a suitable package, it is still up to you to make it look both clear and attractive. Typesetting is still a skilled art, but then so is photography, and there are a lot of amateurs taking very successful photographs, *once* they have had some practice. The only way to learn how to do it is to have a go. In this book there are some suggestions as to how to go about it, but you will best get a feel for layout if you study the styles used by others. Look at all the printed matter that you come across, and look at the way that it has been set out in each case. Ask yourself which styles achieve the best results, and try to analyse and copy them. Soon you will develop a style of your own. The monks may not have had much equipment, but they had plenty of time to practice and develop a style.

2 **Layout and Design**

ASPECTS OF PRESENTATION

The aim of any document should be to present the information it contains clearly, and in a visually pleasing manner. The first stage in the process of getting information into print is to check the text for content and clarity. In professional publishing, copy is always read by an editor, who will check such details as spelling and grammar, and also instruct the printer how the text should be set in type. The benefits of having the text looked at by a fresh eye should not be underestimated. The author and the editor have quite separate roles to perform. The author's job is to create the material, to have ideas and to collect information. The editor on the other hand is concerned with detail and consistency.

Style

The finished document should have a single unified style. This will only happen through a series of positive decisions about the way that the material is to be presented. What form should the document take? What is to be the type style, size, line length and leading? Will the text be in one column per page or more? Are illustrations to be included? These and more factors will all need to be decided on if the document is to appear harmonious rather than something that just happened.

FUNDAMENTALS OF TYPESETTING

Moveable type was introduced to Europe in the fifteenth century by Johannes Gutenberg, and although the craft of typesetting has since evolved, many of the terms used in printing hark back to the days of moveable metal type, set by hand and locked up into forms. The individual letters were arranged before the typesetter in two cases, the

capital letters held in the upper case, the small letters in the lower one. Upper and lower case letters are still referred to in this way, even if they are produced electronically by a word processor.

Type sizes

Type size is referred to in *points*. A point is the usual unit of measurement used in the United Kingdom. One point is 1/72nd of an inch. The type size is determined as the height from the top of the ascenders to the bottom of the descenders. The x-height is the height in points of letters without ascenders or descenders.

Leading

Leading (pronounced *ledding*) referred to strips of lead that were placed between the rows of type to increase the gap between the lines. This is also measured in points. Using the standard printer of your Amstrad PCW, the type is 1/8th of an inch high, or 9 points. There is a choice of several leadings, the default line pitch is six per inch, or 12 points, so in printing terms this would be referred to as 9 on 12 point.

When producing drafts on the Amstrad, it is useful to use double-line spacing (it can actually produce line spacings of 0 (useful for over-printing), 1/2, 1, 1 1/2, 2, 2 1/2, and 3). The extra space between the lines is useful during editing for making corrections, alterations and additions.

Weight

This refers to the thickness of the characters that are finally printed out. As well as normal weight, the Amstrad can produce **bold** and **double strike**. In either mode, each character is printed twice, 1/144th of an inch apart, so that the letter looks darker. The two modes appear the same, and cannot be used together for greater effect. These modes are ignored in condensed pitch, or in super- and sub-script.

Fonts (also Known as Founts)

On the standard Amstrad printer the choice of typefaces is rather limited. If you are using an alternative printer (Chapter 4), then you may have more choice. Daisywheel printers have interchangeable daisywheels, whereas some dot matrix printers have different font modules available; some will even allow you to design your own fonts

and load them into the printer's memory. Laser printers usually have interchangeable fonts, including different type sizes.

There are two main classes of character sets, *serif* and *sans serif* (see Figure 2.1). Serifs are the small lines at the end of the strokes of some characters. A sans serif style does not have these. They may seem unnecessary, even unimportant, but they have a profound effect on the appearance and legibility of a block of text. Characters with serifs look traditional, and are easy to read in blocks. Sans serif characters have a modern, clean look, but are less easy to read in body text. This is because it is not easy to distinguish between **I**, **l** and **1**. Different typefaces should be mixed in the same document with care, but a sans serif heading with serif body text usually works well.



Figure 2.1 Classes of character sets

Headings

Even in modest length documents you will need to break up the text so that the reader can keep track of where he or she is, and also use headings and subheadings to clarify the structure. The headings should stand out clearly from the body text, perhaps in a different typeface, or a slightly larger point size or at least a different weight. Underlining tends to look like typewriting, and is not recommended. It is useful to have headings at different levels, and use some form of coding so that the reader can judge their relative importance. Level 1 headings could be bold and capitals, whereas level 2 headings could be just in bold.

Paragraphs

Paragraphs break up the text and help clarity. You will need to decide on a consistent style for paragraphs. What sort of gap should there be? Should you indent the first line? Most books do not leave a gap in the text, but do indent. LocoScript 2 allows you to set a different gap between paragraphs than the normal line spacing.

Widows and Orphans

If the first line of a new paragraph occurs at the bottom of a page (called an *orphan*), or if the last line of a paragraph falls at the top of a new page (a *widow*), it can look awkward. It is better to force a new page sooner so that at least two lines come together. LocoScript can be set to look after this automatically.

Enhance Legibility

Text beyond a certain width becomes difficult to read because the eye has to scan a long way back to the start of the next line and can easily lose its place. Wide documents (newspapers for instance) are printed in columns in order to be easier to read. At A5, such as this book, a single column is no problem, but wider than this the columns should be restricted to no more than 60 characters across. On the other hand, avoid making the column width too narrow, particularly if the text is justified on both the right and the left, or the inter-word spacing will be exaggerated. A comfortable minimum is about 35–40 characters. If you must have a narrow column, avoid right justification.

Variety with Harmony

When we speak, we use emphasis and intonation to draw the listener's attention to key words and phrases, and so enhance the meaning of what we are saying. With the printed word, we can achieve the same sort of effect with some visual variety in the text. But this must be done within an overall coherent style. A wild mixture of different typestyles can look very bewildering.

Grids

The appearance of any document will look a lot better if you pause before starting and think about the layout. Make a rough sketch, perhaps measure out the page size, and decide in advance how the

layout should be arranged. Positive decisions are far more likely to be successful than no decisions at all. Of course, the layout will depend to a very large extent on what the document is, and how much content there is (Figure 2.2).

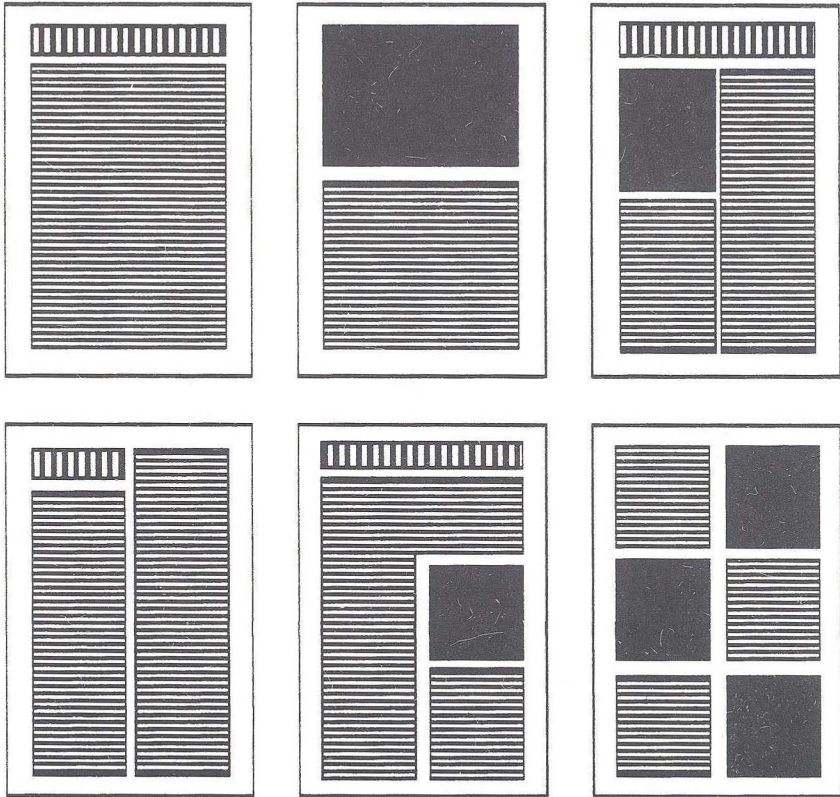


Figure 2.2 Different layouts

If you are preparing the document using a word processing program such as LocoScript, or a desktop publishing package such as *Fleet Street Editor Plus*, then for any document that is likely to be repeated, you can prepare a layout and save it on disk. Then when you need to prepare another version of the document you can recall the layout and use it again. This will be much quicker the second and subsequent times as you will not need to make a lot of the decisions again, which will also lead to more consistent results.

Layouts will help all classes of document: text only, produced on the word processor; text into which you will want to incorporate illustrations; and documents with more complex layouts with columns of text, and perhaps with illustrations. The latter may be produced with one of the desktop publishing or page-layout packages now available for the Amstrad, or by using more traditional methods of scissors and paste. However you go about it, considering the layout in advance is a must (Figure 2.2).

Punctuation

It is generally advisable to avoid over-punctuating. Commas and other punctuation marks to aid comprehension are of course necessary, but for abbreviations it is pointless to shorten words and then increase the line length again with unnecessary full stops to show that you have done so. Open punctuation is more modern and produces a neater end result. The second of these examples appears tidier, yet is no less informative:

G. F. Mc.Taggart and Sons Ltd.,	G F McTaggart and Sons Ltd
127, St. Augustine's Rd.,	127 St Augustine's Rd
Chalfont St. Giles,	Chalfont St Giles
Bucks.	Bucks
Tel. 023-123123	Tel 023 123123

3

Using a Word Processing Program

In this chapter we will look at what can be done with the word processing programs available for the Amstrad PCW. These do not have all the features of a full-blown desktop publishing package, but as we shall see, a lot can be done by the use of various type styles and layouts. Illustrations and other enhancements can be added using the technique of paste-up described in Chapter 5. This may seem to lack something of the convenience and sophistication of the available packages, but the techniques are easy to apply, and inexpensive. The printing out will be quicker, and even though the typestyles will be limited to those standard ones available with your printer, they are likely to be more legible.

FEATURES TO LOOK FOR IN A WORD PROCESSING PROGRAM

The following features will be particularly useful for desktop publishing.

Set up page formats, and store for future use. Setting up the page formats exactly as you want them can take a lot of time, so for convenience and consistency you will want to set up and save your own standard pages and recall them for use again in the future.

Different layouts. It is very useful to be able to use several different layouts within a document, and to be able to change them easily without having to completely reset them each time. You may want one layout for normal body text, another for headings and another with text at half width so that illustrations can be pasted in to one side. If these can be called up with just a few keystrokes, then it will make setting out much quicker, and is more likely to be accurate.

Accurate tabs and right justification. For accurate page layout the use of tabs is very important, and if right justification is used, it will need to

work accurately, even with different type sizes. This requires the word processing program to be accurately matched to the printer. With the Amstrad PCW there is a standard dot matrix printer, and most word processing programs are properly installed for this, although if you want to use an alternative printer, you will need to make sure that this is catered for too.

Headers and footers. Headers and footers can help to make a document look much more 'professional', and a comprehensive facility for these is very useful.

Page numbering. If you are creating multi-page documents, then page numbers are useful to help the readers find their way around, and also help you if the pages get mixed up at some stage in the production.

WORD PROCESSING PROGRAMS FOR THE AMSTRAD PCW

The Amstrad PCW was originally and is still principally marketed as a word processor. Although supplied with a word processing program, several alternatives have become available. Of course, the cheapest word processing program of all is the one supplied free with the Amstrad PCW, LocoScript (version 1.2).

LOCOSCRIPT 1

Supplied as standard with the Amstrad word processor, LocoScript is a remarkably powerful word processor, with many useful features for the preparation and laying out of text. There are facilities for justification and tabulation, and a useful variety of typestyles can be achieved with the standard printer. There are limitations of course, but before spending money on extra facilities it is worth seeing what can be done with what you already have.

LocoScript 1 Versions

Very early PCWs were supplied with LocoScript 1.0. This was while the program was still under development, and it was later superseded by other versions, culminating in version 1.2. You can tell which version you have by looking at the opening screen as the program disk is loading itself (booting up). If you still have version 1.0 or 1.1, Amstrad will exchange it for version 1.2, which was the latest version to be issued free with the machines.

All versions of LocoScript have their own operating system, and do not require CP/M to be loaded. LocoScript 1 however does not have facilities for disk formatting and it is necessary to use CP/M and the utility program (*diskit*) for those purposes.

Version 1.2 of LocoScript works very well. Later developments were *LocoSpell* and *LocoMail*. The version of LocoScript that supports these is 1.4 and this is only supplied as an optional (paid for) extra. LocoSpell is a spelling checker, and LocoMail a mail merging facility. Either or both these extras can be used from within the word processing program itself. LocoMail is not included in the scope of this book.

USING LOCOSCRIPT

LocoScript has two screens, the disk management screen (see Figure 3.1) and the editing screen (Figure 3.2). The disk management screen shows the contents of the disk(s) currently in the drive(s), including the *memory* disk, and from this screen files can be selected for editing, erasure, etc. Once a file is open for editing, the screen changes to the editing one. At the top of either screen are the status lines which show what settings are currently in force, and show what effects the function keys have when pressed.

Disc management.										Printer idle. Using none.																																																																															
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Figure 3.1 LocoScript Disk Management Screen

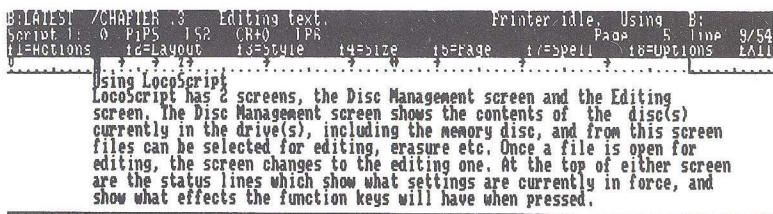


Fig 3.1 LocoScript Disc Management screen - about here.

Fig 3.2 LocoScript Editing screen - about here.

LocoScript works by only holding a certain amount of the document on which it's currently working in the computer's memory. Any more is transferred to and from one of the disc drives as it is needed, although this could be the memory disc.

File creation involves opening a new file on a disc. It can be given a name, or else LocoScript will automatically call it DOCUMENT.000 (or DOCUMENT.001, 002 etc if a file called DOCUMENT.000 already exists in that group). Once a file is open, then text can be inserted until you close the file. At any time the file can be reopened for editing, the Amstrad opens the old file for reading, and creates a new file. As the cursor is moved through the document, all the matter is copied into the new file. As new matter is typed in from the keyboard, that too is added to the new file.

Figure 3.2 LocoScript Disk Editing Screen

LocoScript works by only holding a certain amount of the document on which it is currently working in the computer's memory. Any more is transferred to and from one of the disk drives as it is needed, although this could be the memory disk.

File creation involves opening a new file on a disk. It can be given a name, or else LocoScript will automatically call it DOCUMENT.000 (or whatever number is next in sequence in that group). Once a file is open, then text can be inserted until you close the file. At any time the file can be reopened for editing. The Amstrad opens the old file for reading, and creates a new file. As the cursor is moved through the document, all the matter is copied into the new file. As new matter is typed in from the keyboard, that too is added to the new file.

As a safety precaution, the old file still exists intact until the new, edited version is safely saved. Even then, the old file exists as a *limbo* file and can be recovered until either another file of the same name is saved in that group, or the disk space is needed for some new file. As LocoScript always creates a new version of a file before hiding the old one, the size of any document being worked on is limited by the amount of disk space available. For practical purposes, however, the speed at which any of the versions of LocoScript 1 scroll through documents

means that 20 pages or so is the largest size that you would want to work on. Anything larger can always be split over several files. The use of LocoScript 1 is fully covered in Milan M, *Using the Amstrad Word Processor* (see Appendix 2).

ALTERNATIVE PROGRAMS

As well as standard LocoScript there are now several other word processor programs available for the Amstrad. All have their enthusiastic supporters who will claim that such and such a program has just the features that they want. As everyone's requirements are different, there is no simple answer as to which other program would most suit you, or indeed, whether you need to get a different one at all. Here is a list (which is not exhaustive), of the main word processing programs available, and a description of some of their advantages follows.

- LocoScript 2 (excluding work under CP/M)
- Protext
- Tasword 8000
- Pocket Word Star
- New Word

LOCOSCRIPT 2

LocoScript 2 was introduced in June 1987 as an optional alternative to LocoScript 1. The basic word processing program is very competitively priced compared to its rivals; but when the additions, LocoSpell and LocoMail are included, the package is no cheaper than the others. For LocoScript 1 users however, there is the undoubted advantage that the version is similar in use to LocoScript 1, (although there are some differences, particularly in Document setup), so learning to use it would be less of an effort. In addition, all files created using the old package can be easily converted to work with the new.

The main advantages offered by LocoScript 2 over LocoScript 1 are:

- improved and extended character set;
- the ability to use external printers directly under LocoScript 2;
- faster scrolling through documents, and 'fast jump' directly to a required page;

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Figure 3.6 Symbol Keyboard

select the cyrillic press [ALT]+[f5], to select the symbols press [ALT]+[f7], and to return to the normal character set, press [ALT]+[f1]. The letters Gre or Cyr or Sym appear in the extreme right hand end of the top status line to show you what keyboard you are using (the space is blank when the normal keyboard is in operation).

If you accidentally press one of the super-shift key combinations, you will get unexpected results as you type. If you do suddenly get symbols, or Greek or Russian characters, check the top right hand corner of the screen to see which keyboard you are in and press [ALT]+[f1] to get back to normal.

As well as catering for many different languages, LocoScript 2 caters very well for scientists and mathematicians, and must have the widest range of characters available of any inexpensive word processing package.

Typestyles

The matrix printer that comes with the Amstrad word processor can print out in no less than 50 different sizes and styles, and that is in high quality print alone; the faster draft quality mode is not really of much

interest for desktop publishing except for printing out to check content and layout. Figure 3.7 shows the different combinations available.

Pitch	Normal	Bold	Italic	Bold+Ital	Super-script
PS	Amstrad	Amstrad	<i>Amstrad</i>	<i>Amstrad</i>	^{Amstrad}
10	Amstrad	Amstrad	<i>Amstrad</i>	<i>Amstrad</i>	^{Amstrad}
12	Amstrad	Amstrad	<i>Amstrad</i>	<i>Amstrad</i>	^{Amstrad}
15	Amstrad	Amstrad	<i>Amstrad</i>	<i>Amstrad</i>	^{Amstrad}
17	Amstrad	Amstrad	<i>Amstrad</i>	<i>Amstrad</i>	^{Amstrad}
17D	Ams	Ams	<i>Ams</i>	<i>Ams</i>	^{Ams}
15D	Ams	Ams	<i>Ams</i>	<i>Ams</i>	^{Ams}
12D	Ams	Ams	<i>Ams</i>	<i>Ams</i>	^{Ams}
10D	Ams	Ams	<i>Ams</i>	<i>Ams</i>	^{Ams}
PSD	Ams	Ams	<i>Ams</i>	<i>Ams</i>	^{Ams}

Figure 3.7 Available Typestyles

These different styles can be mixed quite freely within a document, as it only needs the appropriate control codes to be inserted into the text. Two of the very powerful features of LocoScript are particularly useful here, and these are not always available, even in expensive word processing packages. The first of these is that the tabs, and right justification if set, remain absolutely accurate, even if many different type sizes have been used in one line. This may not be obvious from the editing screen, because only one size of character is shown, but when the document is printed out all the necessary calculations will have been done and the tabs and justifications will be correct (Figure 3.8).

No matter what character sizes are selected with LocoScript, tabs and justification remain accurate.

No matter what character sizes are selected with LocoScript, tabs and justification remain accurate,

No matter what character sizes are selected with LocoScript, tabs and justification remain accurate.

Figure 3.8 Example of tabs and justification with different type sizes

The second useful feature is that the various control codes can either be seen on the Amstrad's screen or not, as required. If you are using a lot of codes to change the typstyles within a document, then it is useful to be able to see where you have put them; if they are always invisible, it could get quite confusing. However, it can also become difficult to read the text if there are many codes there. So, using [f8] (Options) you can see or not see the codes as you wish (Figure 3.9).

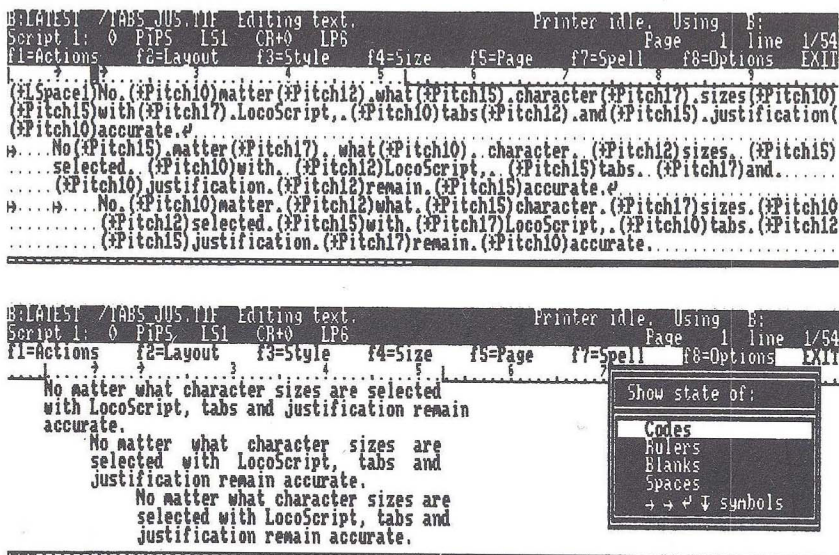


Figure 3.9 LocoScript editing screen with and without codes

For any desktop publishing application, consistency of layout is very important. LocoScript allows you to have many different layouts in the same document, which can be stored and recalled for use as often as required, so that they are exactly the same each time. A great advantage of saving layouts in standard templates is that with very little effort you can achieve absolute consistency between documents.

The principle on which layouts work in LocoScript 2 is different to that in LocoScript 1. In the earlier program, each document could hold a certain number of layouts (defined in the file header), each of which

could be used as often as required. In LocoScript 2 the file header can hold up to 10 stock layouts, numbered 0 – 9, which can be prepared in advance and called from within the document as required. Layout 0 is normally used for the page headers and footer, and layouts 1 – 9 for body text. In fact 10 is a very generous number, and it is unlikely that you would want so many different layouts in any one document, so this should mean that you only need one set of stock layouts to cover most eventualities.

This is not however, the end of the possibilities, because every time that you change the layout in the document, all the data from one of the stock layouts is copied into that point on the text. Each of the new layouts can be altered as required, so that the number of possible layouts even within one document is almost infinite. Setting layouts is a bit of a chore, and so it is worth spending some time on the stock layouts (in fact, you will probably need to), to avoid having to do them again.

Document setup

Document setup allows you to alter the contents of the file header, to control the layouts, page headers and footers, etc. Once you have opened the file for editing (or from any point within the file), Document setup is reached by pressing f1=Actions and then selecting Document setup (Figure 3.10).

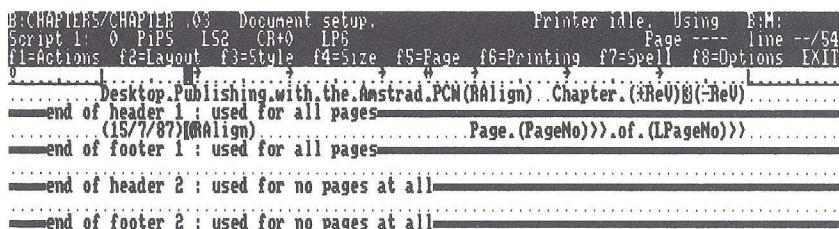


Figure 3.10 Document setup screen

You can now type in the page headers and footers that are to appear in this document (or if you are creating a Standard Template (TEMPLATE.STD) for the group, then they will automatically be copied into the documents created in this group). Page headers and page footers are text which is printed at the top and bottom of every page. They are usually used to contain running headers, and such information as page number, issue date, etc. There is a great deal of flexibility in LocoScript as to the contents of the headers and footers.

Headers or footers can be of more than one line, but will only print out in full if enough space has been allowed for them in the Page Layout menu (f5 = Page from the Document setup screen — see Figure 3.11a). For example, headers and footers could be used to print out cut marks on pages (see Figure 3.11b).

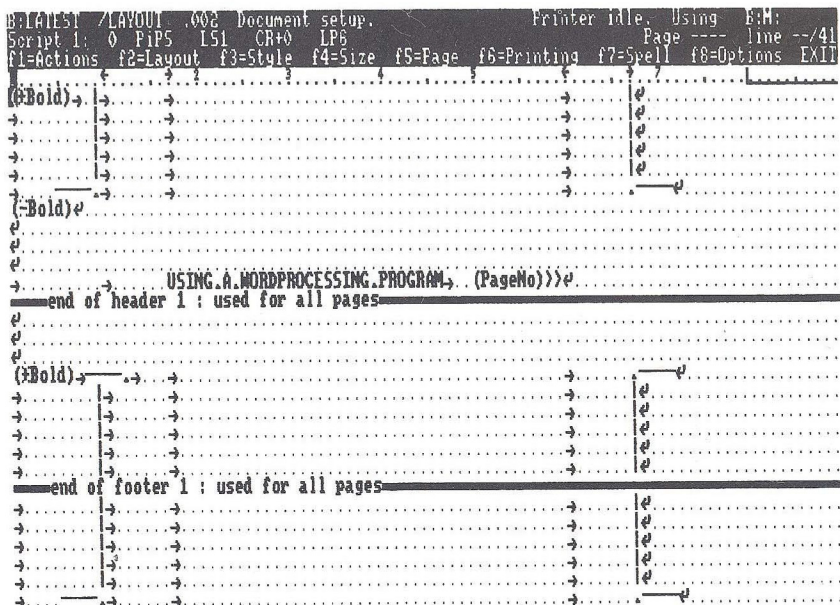


Figure 3.11a Page Layout Menu

The headers and footers are controlled by Layout 0. If you want to use the same settings for the body of the text, then you can copy Layout 0 directly into one of the other stock layouts (press f2=Layout then f5 – this can be done either in Document setup, or from the text editing screen). For any operation other than typing in header and footer text, you will need to press one of the function keys. Figure 3.12 will help you find your way around the menus which you will need to set up documents.

The Function Keys

f1 = Actions (Menu = Doc. setup 1.0).

Delete header/footer Take great care. This is the *default* option, and if you simply press [ENTER] the current headers and footers will be erased without confirmation.

USING A WORDPROCESSING PROGRAM

2

by the use of various type styles and layouts. Illustrations and other enhancements can be added using the technique of paste-up described in Chapter 5. This may seem to lack something of the convenience and sophistication of the available packages, but the techniques are easy to apply, and *cheap*. The printing out will be quicker, and even though the typestyles will be limited to those standard ones available with your printer, they are likely to be more legible.

Features to look for in a word processing program.

The following features will be particularly useful for desktop publishing.

- **set up page formats, and store for future use**

Setting up the page formats exactly as you want them can take a lot of time, so for convenience and consistency you will want to set up and save your own standard pages and recall them for use again in the future.

- **different layouts**

It's very useful to be able to use several different layouts within a document, and to be able to change them easily without having to completely reset them each time. You may want one layout for normal body text, another for headings and another with text at half width so that illustrations can be pasted in to one side. If these can be called up with just a few keystrokes, then it will make accurate setting out much quicker, and more likely to be accurate.

- **accurate tabs and right justification**

For accurate page layout, the use of tabs is very important, and if right justification is used, it will need to work accurately, even with different type sizes. This requires the word processing program to be accurately matched to the printer. With the Amstrad PCW there is a standard matrix printer, and most word processing programs are properly installed for this,

Figure 3.11b Large headers and footers with cut marks

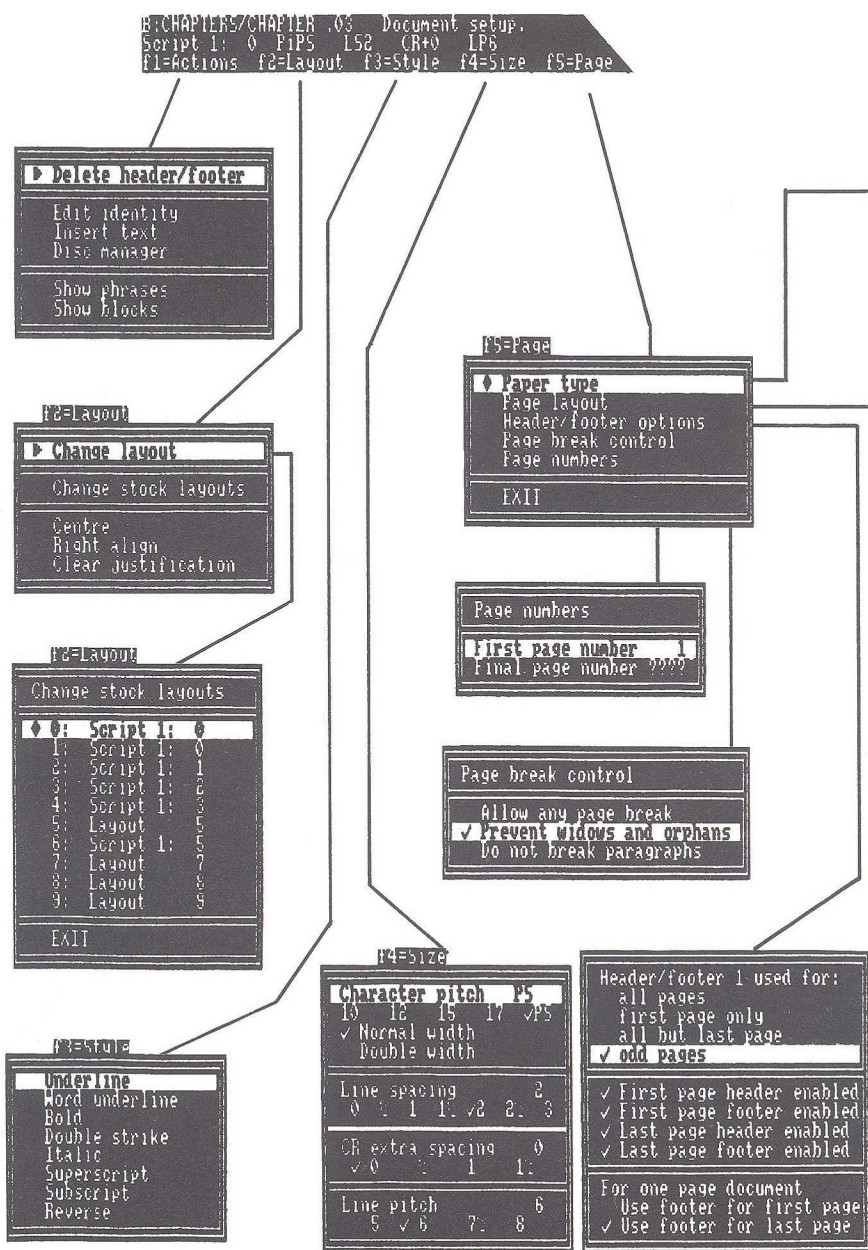


Figure 3.12 Document setup menu tree

Printer idle. Using E:M:
 Page ---- line --/54
 f6=Printing f7=Spell f8=Options EXIT

Paper Type	
<input checked="" type="checkbox"/> A4	
A5	
Continuous	
<input checked="" type="checkbox"/> Portrait (Tall)	
Landscape (Wide)	
▶ Use Paper Type	
Show Paper Type	

Paper: A4	
<input checked="" type="checkbox"/> Single sheet	
Continuous stationery	
Height	70
Width	50
Top gap	6
Bottom gap	3
<input checked="" type="checkbox"/> Ignore paper sensor	

Page layout	
Top gap	6
Header zone	4
Page body	53
Footer zone	4
<input checked="" type="checkbox"/> Fixed footer zone	
Floating footer zone	
Bottom gap	3
Paper length	70

▶ All of document
Just forwards from here
Single word
User dictionary upkeep

f8=Options	
Show state of:	
<input checked="" type="checkbox"/> Codes	
<input checked="" type="checkbox"/> Rulers	
Blanks	
<input checked="" type="checkbox"/> Spaces	
<input checked="" type="checkbox"/> → → ↵ symbols	

f6=Printing	
Printer Selection	
♦ Character Style	
Standard	f5
Character Set	
Standard	
Printer	
MATRIX	
EXIT	

Character Style	
<input checked="" type="checkbox"/> Standard	PS
For Character Set	
Standard	
For Printer	
MATRIX	

Character Set	
<input checked="" type="checkbox"/> Standard	
For Printer	
MATRIX	

Printer	
<input checked="" type="checkbox"/> MATRIX	
EX80	
D630	

Edit identity Allows you to edit the identifying text.

Insert text Allows you to insert text from another file on a disc.

Disk manager Returns you temporarily to the Disk Management screen.

Show phrases Displays the phrases currently in the memory.

Show blocks Displays the blocks currently in the memory.

f2 = Change layout (Menu = Doc. setup 2.0). Allows you to make changes to the current layout (which in Document setup is Layout 0). The function key strip at the top of the screen also changes when this menu appears, allowing the following alterations to be made:

f1 = Margins Move the cursor to the right or left using the [←] and [→] keys to select the position where the margin is required, then press f1. The menu offers Set left margin (default option) or Set right margin. Press [ENTER] when you have selected or [CAN] to quit. An even quicker way to alter the margins is to place the cursor exactly over one of the margin positions: pressing the [+] key will move it to the right, pressing the [-] will move it to the left.

f3 = Tabs Move the cursor to the right or left using the [←] and [→] keys to select the required position of the tab(s), which can also be selected using a menu. A quicker way of setting single tabs is to move the cursor along the ruler to the required position, then press the [+] key. At the first press a simple tab is set, at the second press it changes to a right tab, then a centre tab, and at the fourth press a decimal tab. This takes longer to explain than do. Further pressing repeats this cycle. Pressing the [-] key deletes a tab under the cursor.

f4 = Size A menu appears offering choices of character size, line spacing, any additional line spaces following a character return, and the line pitch. From this menu, the selected characteristics are embedded into the layout and are shown on the second status line at the top of the screen. The options are character pitch (10 12 15 17 or PS), normal width or double width, line spacing (0 ½ 1 1½ 2 2½ or 3), CR extra spacing (0 ½ 1 or 1½), line pitch (5 6 7½ or 8).

f5 = Stock A menu allows you to choose any of the stock layouts to be copied into Layout 0.

f7 = Name As well as altering the details of the layouts, LocoScript allows you to give each one a meaningful name (up to 12 characters). This appears at the left hand side of the second status line at the top of

the editing screen, so that you know which layout is currently being used.

f8 = Options Other choices for each layout are:

- Justification (right-hand edge of text straight or ragged).
- Italic or normal script.
- Decimal marker (recognised by centre tab) either as a full stop (.) or comma (,) — the latter is Continental practice.
- Zeros slashed (Ø) or unslashed (0).
- Scale pitch. This allows you to decide what pitch the positions on the ruler at the top of the screen represent. It can be useful to set this to 10, as the ruler positions will then correspond to the markings on the bail bar of the printer, and setting tabs will be easy. On the other hand, if you are using a smaller pitch typeface than this, the screen can become confused because the text will not be able to fit within the margins.

Change stock layouts (Menu = Doc. setup 2.1). Allows you to select any one of the other nine stock layouts to change in the same way as Layout 0.

Centre (Menu = Doc. setup 2.0). Inserts a centre text code into the text at the current cursor position.

Right align (Menu = Doc. setup 2.0). Inserts a right align text code into the text at the current cursor position.

Set justification (Menu = Doc. setup 2.0). Inserts a justify text code into the text at the current cursor position.

f3 = Style (Menu = Doc. setup 3.0). From this menu different codes can be inserted into the text for the following effects – underline, word underline, bold, double strike, italic, superscript, subscript and reversed out text (this is a screen effect only). Any of these codes can also be inserted using the usual LocoScript mnemonics (eg [+][B] for bold).

f4 = Size (Menu = Doc. setup 4.0). This menu is identical to that in the *f2 = Layout* above, except that here, the selected characteristics are inserted as codes into the text.

f5 = Page (Menu = Doc. setup 5.0). This menu leads to sub-menus which control the size of the page and the way it is laid out.

Paper type (Menus = Doc. setup 5.1 and 5.1.1). LocoScript contains the details of four different types of paper, A4, A5 portrait (vertical format), A5 landscape (horizontal format), and standard continuous computer stationery. It is not limited to these as you can, if you wish, create your own format and give it a special name. The settings with this menu are:

- single sheets or continuous computer paper;
- the height (length) of the paper (in lines at six lines per inch);
- the top and bottom margins, that is, areas at the top and bottom of each sheet in which no printing takes place.

These details are stored in the file header, so that the Amstrad knows what sort of paper the document has been formatted to fit. When you finally print the document out, LocoScript will compare the name of the paper type in the file header with the name of the paper which has been set in the SETTINGS.STD file on the start-of-day disk, or for which the Amstrad has been subsequently set. If they do not correspond, then a menu invites you to change the setting to that expected by the file.

Page layout (Menu = Doc. setup 5.2). This menu reserves the zones of the page within which the headers and footers will be printed, and as a result of the lengths of these zones, the remaining space for the body text. You can also decide whether the footer zone should be fixed, or vary depending on the size of the footer.

Header/footer options (Menu = Doc. setup 5.3). LocoScript allows you to store up to two headers and two footers per document. These can be used in several different ways, and this menu presents you with the options.

If you are going to impose your document into booklet form, then you may wish to have odd and even numbered pages different on a double page spread. For example, on even (left-hand) pages you may want the running headers and the page numbers in the footer to be left justified, and odd (right hand) pages right justified. Or you may want the running header to contain the document title on left hand pages, with the section title on the right hand ones (as they are in this book). These are possible with LocoScript.

Page break controls (Menu = Doc. setup 5.4). The options are:

- page breaks can occur anywhere;
- page breaks always keep at least two lines together at the beginning and end of paragraphs;
- paragraphs are always kept whole.

Page numbers (Menu = Doc. setup 5.5). If the current document is part of a longer one, then you may not want the first page to be number 1. Neither, if you like to print out the page numbers in the style of *Page x of y*, will the last page of this part necessarily be the last page of the total document. This menu allows you to alter the number of the first page and the total number of pages to any value between 0 and 9999.

f6 = Printing (Menu = Doc. setup 6.0). This section of Document setup allows you to choose the printer that you wish to use, and the characters that it will print out.

Character style (Menu = Doc. setup 6.1). At the time of writing, no alternative character styles were available, but LocoScript allows for these to be provided at a later date.

Character set (Menu = Doc. setup 6.2). At the time of writing, alternative character sets were also unavailable, but again, LocoScript has provision for them.

Printer (Menu = Doc. setup 6.3). This menu allows you to choose between the standard printer and an external printer. The types of external printer catered for are dot matrix printers compatible with the Epson FX80, or a daisywheel compatible with the Diablo D630. Alternative printers are covered more fully in Chapter 4.

f7 = Spell (Menu = Doc. setup 7.0). This is to call up LocoSpell (if fitted) to check the spelling of the page headers and footers.

f8 = Options (Menu = Doc. setup 8.0). This menu allows you to display or conceal all the various embedded codes in the document (Figure 3.9).

Long documents in LocoScript 2

Long documents are already handled better by LocoScript 2 than LocoScript 1 thanks to the much faster scrolling through and the ability to jump direct to page. However, really long documents such as a thesis or book can be more readily handled split into sections, such as

chapters. The main reason is that to be able to edit, LocoScript needs at least as much free space on the disk as the length of the file. If documents are kept as very large files, then it is easy to run out of space as the disk fills up. LocoScript allows page numbers to be updated simply, so that the numbers run consecutively through the whole document, and even show the total number of pages if you use the *Page x of y* convention. When you have finished editing all the sections of the document, press f5=Document from the disk management menu, and then select Set first pages. This allows you to move around the list of files quickly, setting the correct page number for the start of each. When all the first page numbers have been set, the total number of pages in the whole document is known from the last file. This can then be quickly set in all the preceding ones.

USING LOCOSCRIPT 2

LocoScript 2 is a great improvement over LocoScript 1, and anyone used to using the latter will find the new version reasonably easy to use. The main difference is in setting up documents, which you will have to re-learn.

LocoSpell is a worthwhile investment, although as with all spelling checkers, you must guard against getting complacent. No spelling checker can sort out mistakes of the *to* and *too* or *though* and *thought* variety. It can only check whether the words in the document are present in the dictionary or not. Because LocoScript 2 is a larger program than LocoScript 1, the dictionary that can be held on the start-of-day disk is smaller than with the old version of LocoSpell. The particular advantage of LocoSpell is that it is an integral part of LocoScript, enabling you to check as you go along. This is much more convenient than other checkers where you need to leave the main word processor before you can check the spelling.

Although LocoScript 2 is not completely a *wysiwyg* (what you see is what you get) word processor, it comes fairly close to it, and it is quite easy to get a very good idea of what will appear on paper. It has a very powerful printer driver which will accurately maintain tabs and margins with a very wide variety of type sizes and an enormous character set. It represents a useful tool for the desktop publisher.

PROTEXT

Prottext is a word processing package supplied by Arnor Ltd. It comes

complete with spelling checker and mail merge. Once the instructions to make a backup copy have been followed, the program is quite easy to get into and use at a simple level. It has some very powerful features, but like all complex programs, it takes some time to learn how to use. The 190-page loose leaf instruction manual supplied is good, but does not cover every feature in the depth that a newcomer to word processing and computing would need. However, with such a complex program it would be difficult to anticipate all the things that people might want and be able to do. A few worked examples would help greatly.

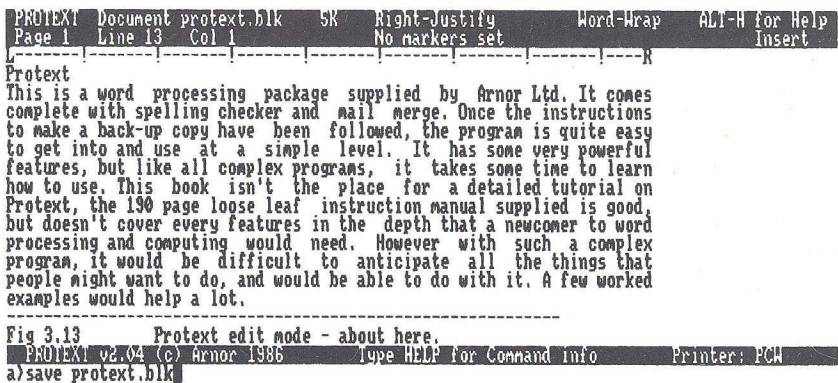
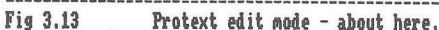


Figure 3.13 Protex edit mode

Protex has two modes, the *edit mode* for text entry and editing (Figure 3.13), and the *command mode* (Figure 3.14) for configuration, disk management, printing, etc. Unlike LocoScript where all instructions in the disk management screen (which is the equivalent of the Protex command mode) are made through menus, in Protex direct commands are typed in. There are various help screens available in the edit and command modes so that you do not have to remember everything, or keep looking things up in the manual.

As soon as the [STOP] key is pressed you are immediately in edit mode and can start to create text. As many *rulers* (layouts) as required can be created in the text by typing '>' in the first space at the beginning of a row, 'L' for the left margin, '!' for tabs and 'R' for the right margin. This ruler then remains in force until the next ruler is entered. Other commands can be inserted in the text such as **bold**, *italic*, *centre text*, etc.

The status line at the top of the screen shows the cursor position. It can work with page mode on where the page and line numbers are



Protext has two modes, the edit mode for text entry and editing, and the command mode for configuration, disc management, printing etc. Unlike LogoScript where all instructions in the disc management screen (which is the equivalent of the Protext command mode) are made through menus, in Protext direct commands are typed in. There are various help screens available in the edit and command modes so that you don't have to remember everything by heart, or keep looking up the manual.

PRINTER CONTROL CODES	r reset	e elite	n pica	s subscript
	b bold	i italics	p proportional	t superscript
TX insert printer code	c condensed	l enlarged	q nlq	u underline
PIR printer panel mode	d double strike			

Figure 3.14 Protex command mode

shown, or off when the status line shows the line number from the head of the document.

The cursor can move through the text very quickly indeed. In page mode the [PAGE] key causes the cursor to move to the top of the next page. This is particularly useful, as the only other way to tell where pages begin and end is to look at the line number shown on the status line. The [DOC] key ([SHIFT]+[PAGE]) moves the cursor rapidly to the end of the document. The file currently being worked on is held entirely in the memory. With a PCW 8512 there is room for about 200 KB of text, but be careful. When Prottext saves a file, it must always have room for the old version as a backup file, so the largest size of file that can be saved is half the total disk area available.

There are several features worth mentioning of special interest to anyone who would use Protext to create specialist documents. The command *symbol* allows special screen characters to be defined. This is useful if you want to include symbols in your documents not available in the normal character set.

Every character is made up on the screen of 64 dots (or *pixels*), eight rows of eight like that shown in Figure 3.15.

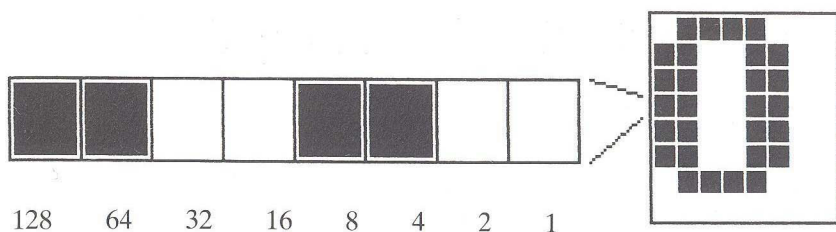


Figure 3.15 Example of a screen character

Some dots will be green, and some black to make up the shape of the character. Each line of dots is held in the computer's memory as a number, and the number will depend on how the dots are distributed along the line. The value of the line shown is 204.

The dot at the right hand of the line has the value 1, the next left 2, the next 4, the next 8 and so on until the dot at the left-hand end of the line has the value of 128. The value of the dots that you want to show up as green are added together. For example should you want to replace the \$ character with an inverted triangle (a *differential operator* in mathematics), then the *symbol* command would be:

```
> symbol 166 0,0,254,130,68,40,16,0 [RETURN]
```

This can be entered in the command mode, but would only remain in force until the Amstrad is switched off. The command can be saved into the configuration file and would be entered into the machine every time it is booted up. However, if you only use the *symbol* command, then the new character will only appear on the screen, but when you try to print out a document, then the original symbol corresponding to that ASCII value (that is the \$ sign) will be printed. To change this (with a dot matrix printer) you will need to use the *setprinter* utility program which will allow you to redefine printer characters. The PCW printer works to the Epson codes, so defining a special symbol is done in much the same way as for the screen, except that here the rows of pixels have to be defined vertically rather than horizontally. So for the symbol shown above, the set of codes to enter would be:

```
27 76 8 0 48 40 36 34 36 40 48 0
```

The codes are as follows:

```
27 'ESCAPE'
```

```
76 ASC 'L' The control code to go into double density bit graphics.
```

	128	64	32	16	8	4	2	1	Screen
128									
64									
32									
16									
8									
4									
2									
1									
Printer									

	128	64	32	16	8	4	2	1	Screen
128									0
64									0
32									254
16									130
8									68
4									40
2									16
1									0
Printer	48	40	36	34	36	40	48	0	

Figure 3.16 Character design form

8 } These two bytes show the number of vertical rows of dots to be
0 } defined. The first of the two bytes is the remainder after the
number has been divided by 256. The second of the two bytes is
the *quotient*, that is the number of 256s in the total number of
bytes. In this case there are only 8 bytes in all, so the two here are
8 ($8/256 = 0$ with 8 remainder, and $8/256 = 0$). Had there been 300
bytes in total, then the bytes here would have been 44 1 ($300 -$
256, and $\text{INT}(300/256)$).

48 ... etc The definitions for each of the eight vertical rows of
pixels.

Figure 3.16 is a character design form which can be used to help
define both screen and printer characters. Photocopy it if you need to
use it many times. The worked example beneath the form shows you the
character already described.

It is possible to make as many printer configuration programs as you
wish, and to redefine the whole character set if you have the time,
patience and inclination. Figure 3.17 shows part of the Prottext character
set.

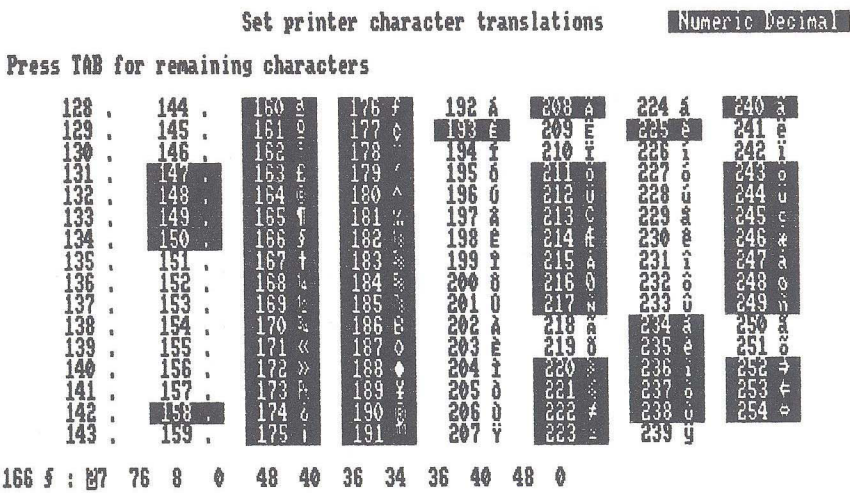


Figure 3.17 Prottext printer driver screen

Setprinter also allows all other printer configuration settings to be made in an exec file that can be called up either automatically on boot up or else loaded as required from the command mode. Again, this allows time to be spent getting the configuration exactly as you require for special purposes, knowing that you will be able to call it up again easily when required.

The search and replace function on Protext is very powerful. An exec file (that is one that can be called to execute a function or functions) can be created which will search for a whole list of items to be searched for and replaced. This can be very useful for various purposes. Perhaps you want to send a disk to a typesetter, and need to replace various codes and characters with those that are required by the typesetting machine. Perhaps you want to send a file by electronic mail, and need to replace any characters and codes outside the normal ASCII range that electronic mail can cope with. Similarly, files received over electronic mail can have special characters put back in. The particular advantage of the Protext method of doing this is that the exec files can be created once, and then recalled for use as often as required. All the exchanges required are made in one fairly rapid pass. Other word processing programs will require a pass for each type of exchange.

Protext is quite easy to use at a simple level, and very powerful if one is prepared to invest the time and effort in learning to use it, and to set up the various configuration files. It seems fairly robust but, as with all programs, work should be saved to disk, and a backup copy made frequently to save loss of effort.

As well as being a good word processing program, Protext has some very powerful features for those needing to produce special printer drivers, and it has extensive search and replace facilities. Until the introduction of LocoScript 2 it was in a class of its own for use with non-standard printers, but the new LocoScript now matches many of these facilities. The special utilities of Protext do need quite some getting used to and the instructions are not always as helpful as they might be. Protext comes complete with a spelling checker and a mail merge program and taken all together is slightly cheaper than LocoScript 2 with LocoSpell and LocoMail.

The spelling checker works differently to LocoScript, as the text must be saved to disk and then checked with the spellcheck program. The text is not displayed on the screen unless an unknown word is found, and

even then not unless the [C] key is pressed. At this, a few words on either side of the unknown word are shown so that it can be seen in context. This method probably speeds checking, but whether it is as acceptable depends on personal preference. The whole dictionary can be displayed on the screen, even printed out. There are routines for searching for word patterns with letters missing and looking for anagrams; all useful stuff for cheating at crossword puzzles!

TASWORD 8000

Tasword is a word processing program produced by Tasman Software of Leeds. It existed for the Amstrad CPC series of computers before the introduction of the PCW, and has been adapted for this word processor. It keeps the document currently being worked on in the memory disk. You can work on quite long documents, up to about 100,000 characters long on the 8256, and over 300,000 characters long on the 8512. Because the file is completely in memory, you can move around the document very quickly. There are a number of help screens (Figure 3.18) and if you are familiar with the machine, it is almost possible to get started without reading the manual.

Although ultimately less sophisticated than either LocoScript or Protext, *Tasword* has an interesting and potentially useful feature. There are two enlarged typefaces built in which allow double height characters to be printed out, even incorporated into normal documents; which is useful for headings and emphasis, and especially for such things as notices to be put up on notice boards, etc. Six additional large typefaces are available through the *Tasprint* 8000 described below.

Tasprint 8000

This is a utility program that can be used in conjunction with *Tasword* 8000, or used on its own to print out ASCII files in special large fonts. There are eight typefaces supplied, three of which are very clear. The other five are more useful for effect. All the styles print at double height, though unfortunately not double width, which would make them even more useful. The typefaces only print out in the standard range of ASCII characters, not special ones or accents. Any number of these typefaces can be called up in the same document from *Tasword*, if you would want to, but if *Tasprint* is used to print out an ASCII file (produced from LocoScript or Protext), then only one style can be used in one document, and must be used throughout (Figure 3.19).

DELETE INSERT		SUPER MOVEMENT	
DELETION:	3DEL to line end	VA start of text	VA left margin
DEL word	3DEL to line start	VA end of text	VA right margin
CUT para	DEL line (un=CMH)	VA start of line	VA scroll up
CUT block	DEL clear text	VA end of line	VA scroll down
INSERTION:	I line/char	VA word left	VA start of para
COPY n/pad	I insert on/off	VA word right	VA end of para
merge-file	3A auto on/off	VA goto line	VA goto page
FORMAT TAB		SPACE	
AA move text left	TAB tab	AA set left margin	AI to AB put marker
AA centre line	TAB reverse tab	AS clear margins	VAI to VAB goto marker
AE move text right	TAB set tab	AD set right margin	A- and A= put marker
AI rejustify paragraph	VA TAB clear tab	AR get ruler	VA- and VA= next marker
AH hard rejustify para	AX reset tabs	AI save ruler	3- and 3= prev. marker
AR rejustify line	AZ clear tabs		
AL unjustify line	3TAB numeric tab		
NOTEPAD		SPACE printer control char. 3SPACE extra char.	
AS STOP notepad mode on/off	AB mark start	AY get, 3Y put footer	3J right Justify on/off
VADEL clear notepad	AV mark end	AI get, 3I put header	3W Word Wrap on/off
VSTOP show all notepads	PASTE move	AC get, 3C put user key	3I insert mode on/off
VCOPY text to notepad	COPY copy	AL lower to upper case	3A auto insert on/off
CCOPY text from notepad	CUT delete	AF upper to lower case	3P Page display on/off
FIND AND REPLACE		AT transpose chars	3N Numeric pad on/off
AR find and replace.	VAR find next	EXIT save, load, print	3H Help on/off 3L Line
FORMATTING		TYPEFACES	
emphasised	superscript	1/6 line spacing	median
backspace	subscript	1/8 line spacing	lectura
condensed	italic	7/12 line spacing	compacta
double strike	underline	proportional	data run
elite	condensed-enlarged	high quality	palace
form feed	enlarged		outline
			ranchero
			breaker
			tasprint off
			emph. double
			box inverse
			large underlin

Figure 3.18 Tasword help screen

TASPRINT will print out your text
in double height characters
from ASCII files or keyboard.

Figure 3.19 Tasprint output

Tas-Sign

This is another utility program supplied by Tasman Software, and although it is not a word processing program nor can it accept files from one, it is worth mentioning as Tas-Sign produces signs and notices in very large, high-quality print. Four different typefaces are available, and up to five lines of print can be accommodated in a mixture of styles and sizes in one notice. Printout can be either portrait, up to the full width of the paper, or landscape, along the paper so that banners of almost any length can be achieved. The print output appearance is very good (Figure 3.20), but printing out is excruciatingly slow, and any large text is likely to wear out ribbons very quickly.

TAS-SIGN
produces
BIG
notices

Figure 3.20 Tas-Sign output

POCKET WORDSTAR

A version of *WordStar*, probably the most widely used word processing package in the world, is available for the PCW. Pocket WordStar is a cut-down version, so that it will fit into the memory available on the 8256. Working under CP/M, (which is the operating system that is used for almost any program other than LocoScript), it has most of the features of the full-blown version excluding the spelling checker and mail merge. It produces standard WordStar files, but these are in special format, ie the last letter of each word has 128 added to its ASCII value. This helps WordStar to format properly, but makes it difficult for other word processing programs that do not use this feature to read the files.

NEW WORD

New Word was already available on several CP/M machines for some time before the introduction of the Amstrad word processor. Its chief claim to fame was as a low cost look-alike of the popular program Word Star, so anyone who had previously used Word Star could start working on New Word without any retraining. This is quite important, because Word Star uses control characters, that is holding down the [ALT] key and then pressing a letter for formatting and editing commands. The letters that you have to press are not always obvious, and take some learning. Having taken the trouble to learn them, many people are reluctant to have to learn anything else!

Like Protext and Tasword 8000, WordStar and New Word work under CP/M. Like LocoScript, WordStar and New Word work to and from a disk file, rather than keeping all the text being worked on in memory (unless you choose to use the memory disk). Like LocoScript 2, Protext and Tasword, WordStar and New Word allow rapid movement even around long documents.

WHICH WORD PROCESSING PROGRAM TO CHOOSE?

Before choosing a word processing package for desktop publishing you will need to ask yourself which factors are important to your application. If you are dealing with short documents, only ever want to use the standard printer, place cost as an important consideration, and are happy with LocoScript 1, then the answer is obvious. Otherwise, you will need to look at the various features on offer: speed of scrolling through documents, ease of creating consistent layouts, ability to use alternative printers, etc. Every package has its fervent adherents, who will consider this feature or that to be of great importance. There are many choices of word processing programs for your Amstrad PCW; the decision must be yours.

4 Printers for the Amstrad

STANDARD AND ALTERNATIVE PRINTERS

The Amstrad word processor comes as a complete outfit with its own printer. However, it is not limited to this, and can be used with most other computer printers available. The standard printer is of the dot matrix kind, but there are other types available. Any one of these could be used with the Amstrad PCW:

- dot matrix;
- daisywheel;
- inkjet;
- thermal;
- laser.

As the PCW is supplied with a printer, you must have a good reason to want to connect a different one. These might be:

- better quality print;
- faster printing;
- printing onto paper wider than the standard printer will accept.

The first thing to do is to consider the types of printer available.

DOT MATRIX PRINTERS

Dot matrix printers form their characters from a pattern of dots, caused by a single vertical row of wires pushing an inked printer ribbon into contact with the paper, making rows of dots. Most printers have nine

wires in the print head, and in draft mode, each character is formed with nine columns of dots. Many printers are also capable of near letter quality (NLQ) mode, where each row of text is printed twice, the paper advancing very slightly between passes so that the gaps present between the first set of dots are filled in. This improves the quality of the print, but has a great effect on the speed at which the printer works. NLQ mode usually takes four times longer than draft mode to print the same amount of text (Figure 4.1).

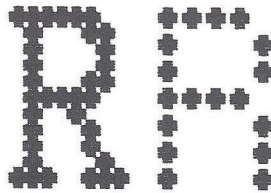


Figure 4.1 Matrix letters

The information of how these patterns are made up has to be conveyed to the print head as it works. Most printers (other than the special Amstrad PCW ones) contain quite an amount of electronic circuitry. This includes some permanent (ROM) memory which stores the patterns against numbers. Then, when the computer wants to print out text, it needs only a simple instruction to tell the printer which characters are to be printed. The instructions are ASCII code, that is 97 for an 'a', 98 for 'b', etc. The printer then looks up these numbers in its internal memory and prints out the patterns of dots that it finds stored under them. In this way the printer can work more quickly, because less data needs to be sent from the computer. Even if you are using a printer in draft quality mode, or a NLQ printer in high quality mode, the instructions sent out from the printer are exactly the same – simply the ASCII code for the characters required.

Dot matrix printers can be very versatile, the more advanced models having RAM as well as ROM to store the character sets. This means that a special character set can be defined by the user and loaded into the printer from the computer so that these can then be utilised using the simple ASCII codes.

The versatility of dot matrix printers extends even further. As well as the standard character sets, any pattern that can be defined within the grid of dots can be printed out. They can also print out high resolution

graphics. In this mode, the whole page can be printed out with diagrams or illustrations as fine as the dot pattern will allow. In order to do this, you need software which is capable of instructing the printer precisely where the patterns of dots are to be. This mode is very slow because the instructions for every dot have to be computed. Normal dot matrix printers like the standard PCW have 64 dots to the inch, so there are about 4096 to the square inch – that is 392,000 on an A4 page!

Amstrad PCW 8256/8512 Standard Dot Matrix Printer

The Amstrad word processor comes complete with its own dot matrix printer. This printer has a very simple mechanism and all the electronics are contained in the computer, so the connection between the computer and the printer is non-standard. The printer cannot be used with any other computer, and the PCW cannot drive another printer without a special interface adaptor, which will be described later.

The data for the characters is contained in the Amstrad's operating system, either LocoScript or CP/M. LocoScript 1 uses a similar design of characters to CP/M, although there are many more characters available. LocoScript 2 has an improved character set, with an extremely large range of characters available. There are two printing modes, draft quality and high quality.

Draft quality is suitable for scanning the text to check the final layout and to make any necessary corrections. The print head makes a single pass over the paper to print out. The printer in this mode is bi-directional, that is, every alternate line is printed with the print head moving from right to left. This saves a lot of time as the head has to make fewer unproductive passes over the paper.

High quality printout has a much better appearance, but for each line of text the print head makes two passes, with the paper moving up a tiny amount between each. The dots from the second pass fill in the gaps between those from the first. For each of these passes the print head moves from left to right so that the superimposition is more accurate, but this sort of output is much slower.

The time taken to print out a document need not be wasted. Under LocoScript, the Amstrad can be used to edit one document whilst another is being printed out. Both activities will be slowed down slightly, but not enough to cause problems. If the document you wish to edit is on a different disk to the one being printed out, copy the file to be

printed into the memory disk. You can then change floppy disks and work on the new file while printing out directly from the memory disk.

For most purposes, the quality of the print is more than adequate, but the standard printer has been criticised by some users for poor quality print and for being slow. Against some of the very expensive printers this may be true, but considering the low cost of the outfit (the whole thing for less than the cost of just some of the printers with which it is compared), both the quality and the speed stand up very respectably against the competition.

Using the standard dot matrix printer under LocoScript

LocoScript 1 and LocoScript 2 have been designed to work with the standard printer. LocoScript 1 however, has the drawback that each time it is switched on it reverts to printing onto single sheet A4 paper in high quality mode. This is fine if it is what you want to use, but it can be tedious if you always have continuous computer stationery loaded in the printer and have to remember to change the settings each time.

LocoScript 2 has the improvement that a file on the start-of-day disk called `SETTINGS.STD` contains details of how you wish to use the machine including the paper type, the printer type, etc. The details of four types of paper are already set: single sheet A4, single sheet A5, (both portrait and landscape) and standard continuous computer stationery. (See Figure 4.4, menu 6.6.1.)

If you wish, you can create your own paper type. (See Figure 4.4, menus 6.0 and 6.1.) For example, I have some special headed notepaper that was printed on A4 paper and then cut square. The strip cut off was used to make headed notelets (which have turned out to be more useful than the notepaper!). Some companies use the strips for compliments slips. These notepaper sheets are obviously shorter than normal A4 sheets, and because of the printed heading along the top need a bigger top gap. So a special paper type has been set up, called *notepaper*, both as a paper type in `TEMPLATE.STD` used to create documents and in `SETTINGS.STD`. Now when a letter is created to be printed out on notepaper, the paper type selected during Document setup is notepaper, and when this is printed out, LocoScript 2 notes this and looks up the appropriate settings which are stored under the same name in `SETTINGS.STD`.

Using the standard dot matrix printer under CP/M

When you use the Amstrad under CP/M, the printer still has to be set for the type of paper that you are using. The default setting for the printer is single sheets of paper. Under CP/M, when you press the [PTR] button the printer control information is displayed across the bottom of the screen. These are like the buttons on an ordinary printer. Use the [→] and [←] keys to move the printer control cursor from button to button and use the [+] and [-] keys to alter the settings (Figure 4.2).

```
Printer: On line   Top of form  LF  FF  Draft quality  P O defeat:On Hex:Off  RESET
          Off line   at line ##           High quality  P O defeat:Off Hex:On
```

Figure 4.2 Printer Control Options under CP/M

Even if the printer controls are set to on line, the printer needs to be switched on and off from the keyboard using [ALT]+[P]. Pressing [ALT]+[P] for the first time switches the printer on (when the Amstrad will beep); pressing [ALT]+[P] again will switch the printer off (when the Amstrad makes no noise).

Fortunately there is an easy way to prevent the printer from stopping at the bottom of each page when you are using continuous paper, and that is to use the paper utility under CP/M. After loading CP/M (and before doing anything else), with the CP/M disk still in the drive, type:

```
paper 11 [RETURN]
```

This will set the printer for continuous stationery with a page length of 11 inches. You will find it most convenient to incorporate this instruction into a *submit file* (for a fuller explanation see Milan M, *Using the Amstrad Word Processor*, Chapter 7).

If you have forgotten to set the printer to continuous paper and it stops at the bottom of the first page, press the [PTR] key, use the [→] key to move the cursor to the 'Waiting for paper' message and press [+]. Then press [EXIT] and printing will resume. You will need to do this at the bottom of every page unless you set the printer for continuous paper.

Page Dumps from Desktop Publishing Packages

All the art, page make-up and desktop publishing packages have printer driver routines which allow printing out in draft or high quality modes. The draft mode, although significantly faster, is only suitable for checking content and layout. Electric Studio's *Art* program does not allow for continuous paper. If the printer thinks that it has come to the bottom of the sheet it will stop, the CP/M printer status line will appear at the bottom of the screen and you have to cancel the 'Waiting for paper'. Annoyingly, once you have done this, the printer advances the paper about an inch, leaving a gap in your graphic. You should always check by pressing the [PTR] key that the computer is at 'top of form' before printing, and if you do use continuous paper, you can use the CP/M utility paper 11 before you load up Art.

ALTERNATIVE DOT MATRIX PRINTERS

Most printers on the market are of the dot matrix type. This is mainly due to their versatility and the fact that they have become so mechanically reliable. As well as being able to reproduce almost any character set (for which they are programmed, eg the Amstrad standard printer under LocoScript 2), they can handle high resolution graphics. Almost all dot matrix printers now available are of the NLQ type. If you are thinking of using a different printer, it is not really worth considering anything simpler, as the print quality is likely to be inferior to the standard Amstrad printer.

24-pin printers

One recent development is 24-pin printers (Figure 4.3). These have print heads with two vertical rows of 12 pins side by side. The rows are offset slightly so that the second row fills in the gaps left by the first row, therefore NLQ mode can be produced with one pass of the print head, and has more resolution than can be achieved with two passes of a 9-pin head. These can also be fitted to the PCW, and although they are able to produce better quality type faster, the quality of 'high resolution' graphics may not be noticeably better. The reason for this is that instructions for each minute dot which make up high resolution graphics must be sent to the printer's pins, and this is limited by the resolution of the image in the computer's memory. Therefore the fact that there is a better printer does not mean that there is any more detail available to be printed out, so there may not be any improvement in the output. One of

the major limitations of most desktop publishing packages for the PCW is the graphics resolution within the computer itself.

24 pin printers produce clear characters at high speed.

```
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz  
1234567890  
!@£$%^&*(){}[];:'" '~,<.>/?
```

Figure 4.3 24-pin output

USING ALTERNATIVE PRINTERS

Using the standard printer supplied with the Amstrad PCW is relatively simple. The computer and the printer are designed to work with each other, so you do not need to worry about compatibility. If you want to use a different printer however, you will need to consider two areas where computers and printers may work to different standards. The first is the electronic method of communication between the two, and the second area concerns the various codes that are used for printer control.

Parallel or series?

There are two major standards for computers to communicate with printers. These are the *Centronics* and *RS232*. They work in completely different ways. Centronics (named after the printer manufacturer who introduced it) sends the data from the computer to the printer along a ribbon cable. The ASCII codes are sent as an 8 bit binary code, all bits being sent simultaneously along different wires. The RS232 is an international standard for *serial* transmission of data, that is, the data is still sent as ASCII code in binary form, but in this case the bits are sent one after the other down the same wire. Printers usually use one or other of these standards although Centronics is the more common (and often the less expensive) of the two.

Printer control codes

The other standards to know about are those for sending special codes to the printer to produce special effects such as underlining, bold print, or different letter sizes. If you only use LocoScript and the standard

PCW printer, then you do not even need to be aware of these because the codes have all been incorporated into the word processing package. However, if you want to use another printer, or even another word processing program, then you may need to *configure* (computer jargon for *set up*) the program for your equipment.

The most common code for dot matrix printers (and the one used for the PCW printer) is the *Epson* code. This code is also named after the printer manufacturer who introduced it. The Epson code uses *escape sequences* which means that the printer control codes start with ASCII number 27 (escape). The printer is programmed to recognise that this character will be followed by another which will not be printed, but is recognised as a command. For example, 'escape G' (ASC 27, ASC 71) sets double strike mode, while 'escape H' (ASC 27, ASC 72) will cancel it again. Not all the ASCII codes used in escape sequences are for letters of the alphabet. For instance 'escape -' (minus) (ASC 27, ASC 45) sets or unsets underline mode. Here a second ASCII value must follow the command; 27, 45, 1 sets the underline, 27, 45, 0 cancels it. A full list of Epson codes will be found in Appendix II 'Advanced use of the printer' of the CP/M manual supplied with the PCW, but you will not need these with most word processing programs.

Epson codes are only used by dot matrix printers; daisywheel printers usually use *Qume* or *Diablo* codes, which work in a similar way, but with different escape sequences for various effects (and are different to each other). LocoScript 2 is already configured (that is, it has the codes built in) for 30 different printer types, including Epson, Diablo daisywheel and some lasers. If however, you want to use a printer not already catered for, then a support package is available which allows you to configure the program to suit yourself.

Using a Centronics/RS232 Interface

Using any printer other than the specially designated PCW ones will involve using an output adaptor. These slide on to the printed circuit board edge connector that sticks out of the back of the word processor. The official interface sold by Amstrad is called the CPS8256. This provides a standard Centronics connector, and a standard RS232 connector in the form of a 25-way D plug (Figure 4.4). Alternative makes are obtainable. One which seems particularly good value for money is made by SCA Systems, which provides both the facilities mentioned so far, plus an internal real-time clock which can be used

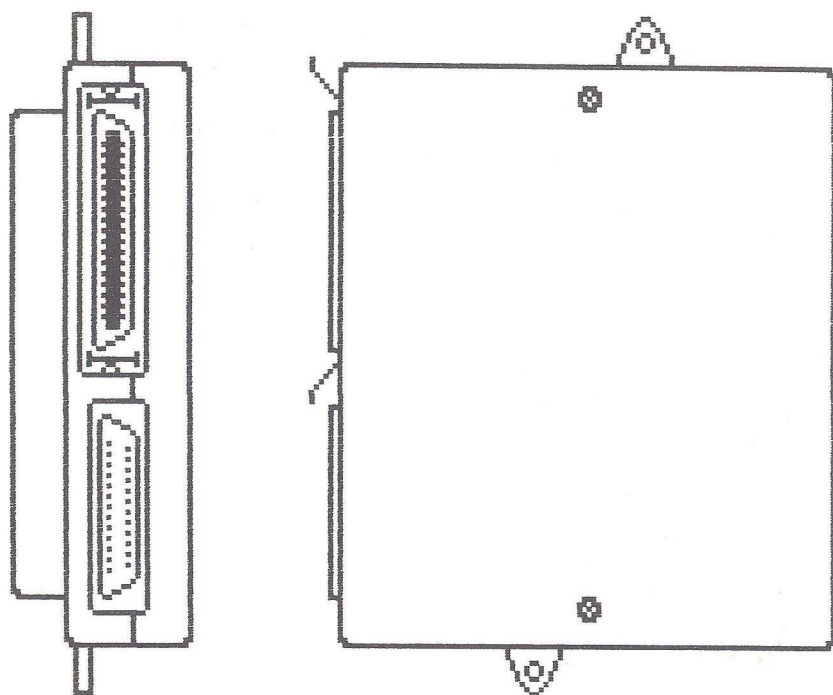


Figure 4.4 Centronics/RS232 interface

with certain programs. At the time of writing, it is cheaper than the official version which only has the interface facilities.

External printers cannot be used with any of the versions of LocoScript 1, but LocoScript 2 supports the interface and can handle the control codes for Epson FX80 and NLQ printers, as well as the Diablo 630 standard. These cover the vast majority of printers available on the market today. If you are using a different word processing package, check that it has been installed for the Amstrad with different printers, otherwise you may have quite an amount of work to do setting up all the appropriate codes for your printer. Protext has excellent facilities for alternative printer configuration.

SETTING UP LOCOSCRIPT 2 FOR ALTERNATIVE PRINTERS

In order to use an alternative printer with LocoScript 2 you will need the Centronics/RS232 interface and your start-of-day disk. In group 1 of the LocoScript 2 supplied to you are four files:

- INSTALL.DRV
- FX80.PRI
- FX80_NLQ.PRI
- D630.PRI

These are the printer driver programs for the printer standards that LocoScript 2 is already set up for. You will need to copy or move the appropriate programs into group 0 of your start-of-day disk. You will also need INSTALL.DRV for any printer. For normal dot matrix printers which use the Epson codes you need FX80.PRI, for near letter quality dot matrix printers use FX80_NLQ.PRI, and for Diablo standard daisywheel printers use D630.PRI. With these programs in group 0 of your start-of-day disk you will be able to set up your Amstrad to use your alternative printer.

Selecting Printer

Referring to Figure 4.5, from the disk management screen press f6=Settings, and get menu 6.0. Move the menu cursor down to:

◆ Standard Printer

and press [ENTER] to get menu 6.3. This menu presents you with the choice between the printer drivers that have been transferred to group 0. To select a different printer move the menu cursor down to the one required, press [+] so that the tick ([✓]) appears beside it and press [ENTER]. This will take you back to menu 6.0. Now move the menu cursor down to Printer Defaults and press [ENTER] to get menu 6.6. This allows you to make two settings – the Default Paper Type (menu 6.6.1), and Printer Options (menu 6.6.2).

Default Paper Type

Choose the paper type that your Amstrad should automatically expect when LocoScript 2 is loaded by moving the menu cursor to the required one and pressing [+] so that the tick ([✓]) appears beside it and press [ENTER].

Printer Options

From menu 6.6.0, move the menu cursor to Printer Options and press

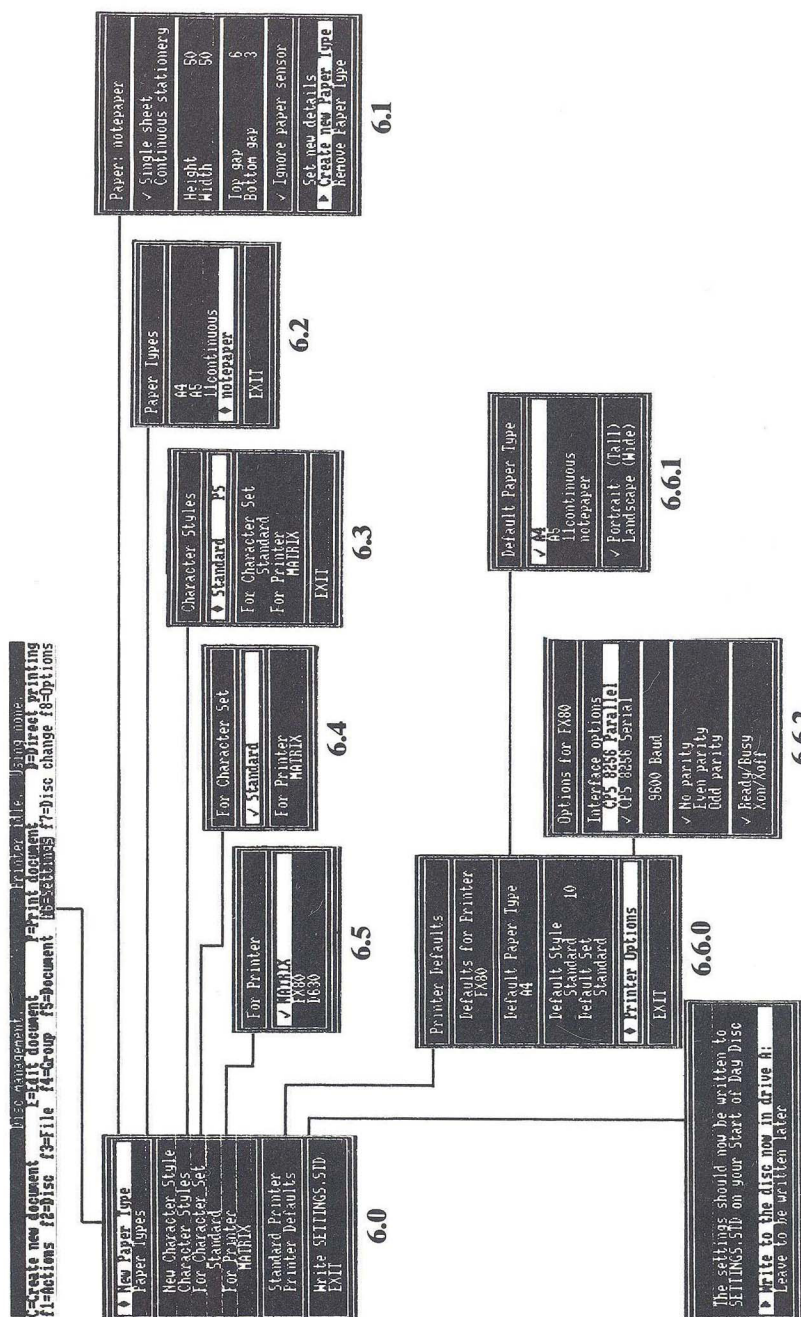


Figure 4.5 LocoScript 2 settings menu tree

[ENTER] to get to menu 6.6.2. You can now select the Interface Option, either parallel or serial. If you choose serial, then an extra part of the menu appears with choice of options for *baud rate* (transmission speed), *parity* (error checking) and *handshaking* (to tell the Amstrad when the printer is ready to receive data).

Writing SETTING.STD

Return to menu 6.0 using the [ENTER] and [EXIT] keys. Select Write SETTING.STD and press [ENTER]. The selections are now recorded in the file SETTING.STD on the start-of-day disk. These settings will now be set every time LocoScript 2 is loaded into the Amstrad.

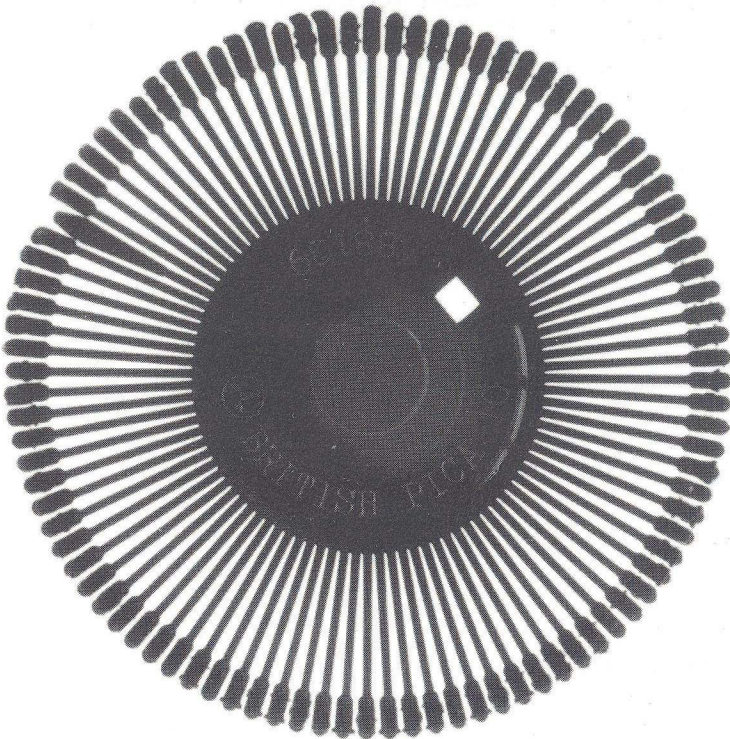
DAISYWHEEL PRINTERS

A daisywheel printer works rather like an ordinary typewriter, that is it is an impact printer, with fully formed embossed letters striking the paper through a ribbon. The letters, numbers and characters are mounted on stems around a metal or plastic disk about 3" in diameter (the daisywheel). As the print head moves across the paper, the daisywheel rotates until the required character is in position and then it is pushed against the ribbon and paper by an electromagnet hammer. The typeface can be changed by putting on a different daisywheel. This sort of printer produces very clear type (Figure 4.6), but it is slow and noisy. Graphics are restricted to anything that can be made up from the standard alpha-numeric set.

Some of the less expensive daisywheel printers are adaptations of electric typewriters, with or without the keyboard. The simplest will only allow one print pitch (the number of characters printed per inch), but others will allow up to three pitches. To be successful however, matching daisywheels for different pitches should be used.

For clarity, daisywheel printers can use plastic ribbons. Instead of inked fabric as with ordinary ribbon, these are a very thin plastic film covered with ink, all of which is transferred to the paper giving a very sharp, dense image. Plastic ribbons are very long, but can usually only be used once, and so can be relatively expensive.

The actual daisywheels come in two main types, Qume and Diablo standards. These look very similar, but the characters are arranged differently around the stems, and so are not compatible. Made of



Daisy wheel printers produce very clear characters, slowly and noisily. However the printers need not be expensive, and alternative print wheels are very cheap.

ABCDEFGHIJKLMNOPQRSTUVWXYZ
 abcdefghijklmnopqrstuvwxyz
 1234567890
 !@£\$%&*() $\frac{5}{8}$ $\frac{3}{4}$ [] ; : ' " ° $\frac{7}{8}$, $\frac{1}{8}$. $\frac{3}{8}$ / ?

Figure 4.6 Daisywheel and output

plastic, they do not last for ever, but are not too expensive to replace. LocoScript 2 has a printer driver supplied for Diablo 630 daisywheels.

AMSTRAD PCW9512 WITH DAISYWHEEL PRINTER

At the time of writing, Amstrad had just announced a new version of the PCW, the 9512, which differs significantly from the 8000 series. The main differences are:

- daisywheel printer;
- disc drive 'a': is double density;
- supplied with LocoScript 2, LocoSpell and LocoMail.

While the new 9512 will be able to produce excellent quality text, the character set will be restricted to those on the daisywheel, and graphics will not be possible, so desktop publishing packages will not work with this machine.

THERMAL PRINTERS

Thermal printers are very quiet in operation, having very few moving parts. However they need special heat-sensitive paper, and are not usually associated with very high quality images, so they are not really suitable for the applications covered in this book.

INKJET PRINTERS

Inkjet technology can only be described as rather improbable! These printers form their characters from a pattern of dots, like dot matrix printers, but instead of wires striking the paper through an inked ribbon, small jets of ink are directed at the paper through a line of minute holes. Early inexpensive models of inkjet printers managed to make the print look rather like a poor carbon copy, but the latest ones are far better. They are very quiet in operation as there are very few moving parts, and with no impacting.

LASER PRINTERS

Laser printers are a relatively new development. They use a small semi-conductor laser (Light Amplification by Stimulated Emission of Radiation) which gives out a sharply defined coherent beam of light which can be directed as a minute intense spot. The first ones were

designed for use with large mainframe computers and could print out at amazing speeds, up to 20,000 lines per minute. More recently, many laser printers have become available for the office market, where they have been reduced to the size of a small desktop photocopy machine. This is not surprising as laser printers are actually an offshoot of photocopier technology.

Inside a laser printer, a rotating drum is given an electrical charge. A laser beam reflected by a rotating mirror scans across it rapidly switching on and off, and forming an image, rather like the image on the visual display of your Amstrad. Where the laser beam falls on the drum, the charge is lost. The drum is then covered with a deeply coloured powder, called toner. Where there is a charge, the toner sticks to the drum. Where the charge has been destroyed by the laser beam, the toner drops off. Any toner sticking to the drum is then transferred to plain paper, and then baked to the paper by passing it under a heated element. A laser printer is relatively silent, and when producing text, will usually work at about eight pages per minute.

A recent development is to replace the laser with a row of light emitting diodes (LEDs). This is simpler, and could eventually lead to cheaper printers.

Even the simplest laser printer will cost several times as much as a whole Amstrad PCW outfit. So is there any justification for considering one, and will it improve the quality of your output?

The major feature of a laser printer is the high resolution of the characters that it can produce — 300 dots per inch compared with 144 dots per inch for a 9-pin dot matrix printer in NLQ mode. But the ability of a laser printer to produce high resolution graphics to the same quality will depend on the amount of internal memory it has, and the software that is in the computer. In order to produce a page full of high resolution graphics, those graphics have to be produced somewhere in memory, either in the computer's, or the printer's, before they can be transferred to the drum. At 300 dots per inch, there would have to be about 1 Mbyte of memory to store a whole A4 page of graphics.

Simpler laser printers will produce text to a very high standard, using internal character sets and receiving instructions simply in ASCII code like ordinary printers, but they cannot handle graphics any better than a dot matrix printer. Even if you have access to a laser printer, unless your

software can take advantage of the resolution available the results will not be special (Figure 4.7).

Laser printers produce very clear characters, quickly and silently.

```

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890
!%£$%^&*(){}[];:'"`,<.>/?

```

Figure 4.7 Laser printer output

The text output from your Amstrad with a laser printer, using the printer's internal fonts, will be practically as good as a daisywheel. The output will be faster, it will be very quiet in operation, and you may be able to produce some graphics. You must however judge whether the results from a 24-pin dot matrix printer may be equally acceptable and certainly far cheaper to buy, as well as cheaper to run.

At the time of writing, Amstrad were said to be developing a low cost laser printer. This will primarily be aimed at business users of the PC1512 series, but will certainly be usable with the PCW also.

USING ALTERNATIVE PRINTERS UNDER CP/M

If you want to use a program under CP/M that does not specifically allow for external printers, then you will need to direct the output to the RS232/Centronics interface. You do this under CP/M before loading the program itself. You will need the CP/M utility *device* which is on side three of the disks supplied with the PCW. For an explanation of how to use CP/M utilities see Milan M, *Using the Amstrad Word Processor*, Appendix 4.

The command for a Centronics printer is:

```
device 1st:= cen
```

and for a serial printer:

```
device 1st:= sio
```

When using serial output the baud rate is set by default to 9600, for another include the required rate as a parameter, eg:

device 1st:= sio 4800

The *device* utility cannot be set up if the PCW is unable to detect that the serial/parallel interface is connected. Any other device attached to the printed circuit board edge connector is likely to block this, even if the interface can be piggy-backed onto it. Therefore external printers cannot be used with any program which needs a mouse or lightpen in order to work. The Electric Studio's Art program cannot be used because it needs a mouse or lightpen to select from the menus, but the same company's *Newsdesk International* can because it can be used from the keyboard.

PRINTER RIBBONS

One major factor affecting the quality of the printout, either from the standard printer or an alternative, is the condition of the printer ribbon. The results from a used ribbon are significantly inferior to those from a fresh one. The setting of the blue head adjustment lever to the right of the printer platen also has some effect (Figure 4.8).

There are two sorts of replacement ribbon available for the Amstrad

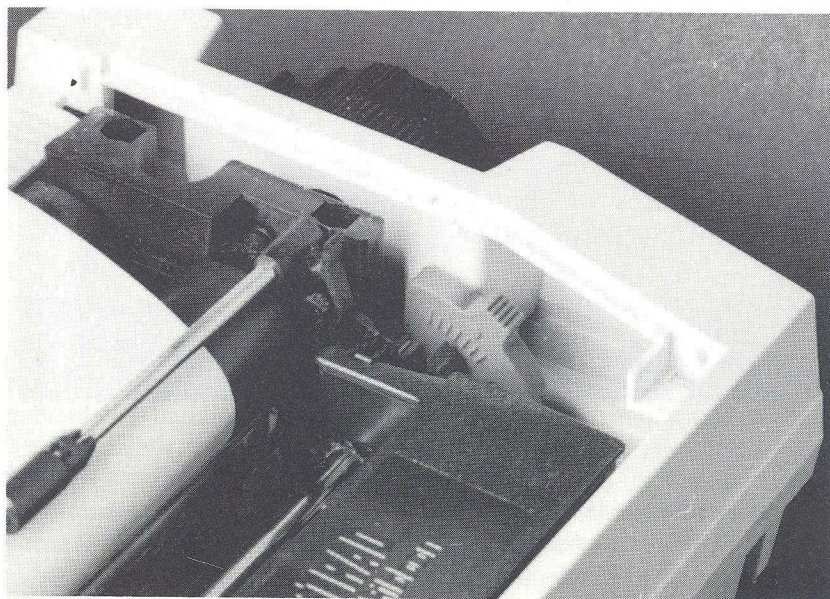


Figure 4.8 Head adjustment lever

PCW, one of inked fabric, (as supplied with the machine when new), and a carbon ribbon.

Inked fabric ribbon

These are similar to ordinary typewriter ribbons. As the print head moves backwards and forwards across the paper, the ribbon is pulled out of the cartridge on the right, and wound into another on the left. The ribbon is in the form of an endless loop, so as soon as it has been past the print head once, it starts again. The ribbon strikes the top half of the ribbon, and an ingenious system is used to effectively double the length of the ribbon — it has a twist in it. In this way it is in the form of a Möbius strip. If you were to take the ribbon out of the cassette and follow it round (certainly getting very dirty fingers in the process) you would find that it has got only one side and one edge (Figure 4.9).

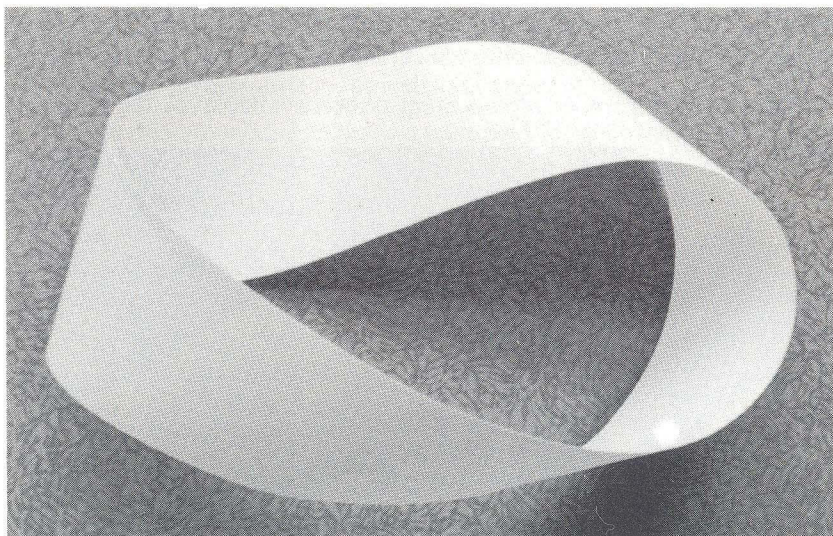


Figure 4.9 Möbius strip

This mathematical curiosity is easier to examine if you make a model of it by taking a strip of paper and sticking the ends together so that it forms a loop with a twist in it. With a pencil, draw a line along the centre of the strip until the line meets up with itself. When you look at the 'other' side of the paper you will find the line there too! More fun can be

had by now cutting this loop in two, along its length. You will not get two loops as might perhaps be expected, but one long one, showing that as well as only one side, the paper had only one edge too, but of twice the length.

All this may seem to have taken us rather a long way from printer ribbons, but as the print head only strikes one edge of the ribbon, the ribbon can go around the loop twice before the head strikes the same point again — ingenious. This only works, of course, because with an inked fabric ribbon, it does not matter which side touches the paper.

The ink on a ribbon does not last for ever, and there are two ways of putting off the moment when you have to buy a new one. The first method is to send your used ribbon off to have it re-inked. Several firms advertise this service and it costs about 40% of the price of a new one. (See Appendix 4.)

Inked fabric printer ribbons can also be rejuvenated by forcing the top off the cartridge and re-moistening the ribbon with a penetrating lubricant such as WD40, directing the spray through the thin tube provided with the aerosol can. Be careful not to overdo it though, as my first attempt resulted in inky WD40 running out of the cartridge.

The lubricant needs to be applied as evenly and as sparingly as possible. Although the re-moistened ribbon will not print out at the same density as a new one, the method is very cheap and is good enough for drafts. In the end, when there really is no colour left, you may always send it off to be re-inked.

Coloured ribbons

In addition to black, fabric ribbons are available in red, blue, green, brown, purple and orange (see Appendix 4). Obviously, these are of limited usefulness for any material to be subsequently duplicated, but are handy for highlighting text. If you want to print out one section in a different colour, press the [PTR] key during the last line before the change is required. The printer will stop when it has finished that line and you can then change the ribbon (fortunately the Amstrad printer is one of the easiest for changing the ribbon). Pressing the [EXIT] key resumes printing. You can do this as often during a document as you have the patience. The coloured inks used tend to fade if exposed to direct sunlight for long periods.

Carbon ribbon

A new and different type of ribbon is now available for the PCW. This is a carbon ribbon (Amsoft product code SOFT 06441). These were previously only available for daisywheel printers. They produce a sharp, dense black image, which looks particularly good with graphics output. There is an added advantage that carbon images can be used in an infra-red copier (see Chapter 9).

Where ordinary ribbons are made of an ink soaked fabric, carbon ribbons have a thin plastic base, one side of which is covered with a

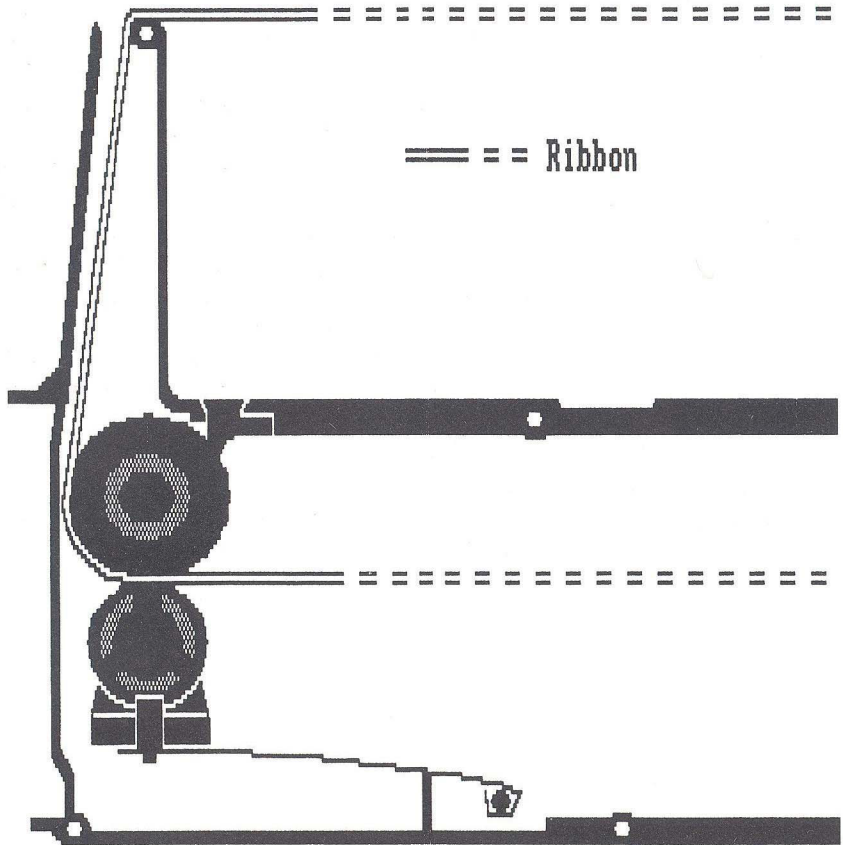


Figure 4.10 Carbon ribbon

coating rather like the carbon paper used to make multiple copies in a typewriter (Figure 4.10). Daisywheel-type carbon ribbons usually transfer all the coating to the paper when struck, with the result that the ribbon can only pass through the printer once. The Amsoft one does not transfer all its ink at once, but nevertheless cannot be recycled as often as a fabric ribbon. However, being on a thinner base, a longer ribbon is packed into the cartridge.

As the carbon coating is on one side of an impervious plastic base, carbon ribbons can only be struck in one direction, so they cannot take advantage of the Möbius strip principle to double their length. This means that normally, only half of the ribbon is used. However, with very little effort you can turn over the ribbon in the cartridge. As this doubles their life (thus halving their cost), it is well worth doing. To do this take the top off the used carbon ribbon cartridge. Note how the ribbon passes between the two pinch rollers (see Figure 4.10). Hold the sprung jockey roller open and slip the ribbon out (you do not get your fingers very dirty with this sort of ribbon, but it is best to spread some old newspaper underneath). Tip the ribbon out of the cassette onto the paper. Now put the ribbon back between the rollers, so that the carbon coating is on the outside, and the unused edge is towards the open *top* of the cartridge. Run the ribbon straight through the cartridge and out of the slot at the other end, making sure that there is no twist in it. Now you can put the top back on, even though most of the ribbon is still outside. Once the top is on you can use the advancing knob to wind the ribbon into the cartridge, making sure to undo any twists as you go. Once all the ribbon has been wound inside, give one or two more turns of the knob to make sure that the ribbon is being pulled out from inside the cartridge correctly, and the ribbon can be fitted back into the printer. The ribbon will print like new again. The whole job takes about 10 minutes and saves over £5.

5

Combining Text with Illustrations

PASTE-UP

If you want to incorporate illustrations in your work, possibly in several columns, then the traditional way to achieve this is by using the technique known as paste-up. This is where all the copy and the illustrations are pasted down onto a piece of paper or card. The final result can then be photocopied or printed by photo-lithography. Although there are now several desktop publishing packages available for the PCW, paste-up still remains the cheapest means of combining text with illustrations, and is not necessarily the most time-consuming. It is still the method most used by professional publishers.

In order to make sure that the artwork (copy and illustrations) is straight, it is useful to have a layout grid very lightly pencilled on the card. If you are going to do a lot of pasting up to the same layout, then it is convenient to have card pre-printed with the grid in such a way that the lines will not be reproduced when the final results are printed. This is done by printing the grid in a light blue ink. Having a pre-printed grid allows you to get your layout absolutely consistent (see page 79).

FULL-WIDTH PAGES WITH SPACES FOR ILLUSTRATIONS

The simplest way to do this with your standard Amstrad word processor and LocoScript is to set out the pages leaving spaces for the illustrations to be pasted in afterwards, before photocopying the results. The illustrations can be created by hand, using a computer graphics package, or by *screening* photographs (page 97). Illustrations may also be taken from other documents providing copyright permission has been obtained from the publisher.

For illustrations which will cover the whole width of the page you need only leave the appropriate number of lines blank in your document. This is very easy to calculate from the line pitch and line spacing shown in the status lines at the top of the editing screen. The usual line pitch is LP6, that is six lines per inch. An alternative setting is LP8, ie eight lines per inch. The line spacing shows how compact the text will be. LS1 means that the text is printed out on every line, LS1½ means that the paper is moved on 1½ line spaces before the next line of text is printed out, LS2 is double spacing, etc.

For illustrations which will only cover half the width of a page, then separate layouts can be prepared which will restrict the text to one side of the page or the other (Figure 5.1).

B:LA1EST / LAYOUT .004 Editing text.				Printer idle. Using E:H:			
Half width	PiP5	LS1	CR+ LP6		Page 2	line 12/41	
f1=Actions	f2=Layout	f3=Style	f4=Size	f5=Page	f7=Spell	f8=Options	EXIT
.....alternative setting, is, (*Bold)LP8(-Bold), 8 lines per inch. The line.....							
.....spacing shows how often text is printed out. (*Bold)LS1(-Bold) shows.....							
.....that text is printed out on every line, (*Bold)LS1½(-Bold) shows.....							
.....the paper is moved on 1½ line spaces before the next.....							
.....line of text is printed out, (*Bold)LS2(-Bold) is double spacing, etc (Layout) e.....							
.....For illustrations which will.....							
.....only cover half the width of a.....							
.....page, then separate layouts can.....							
.....be prepared which will restrict.....							
.....the text to one side of the.....							
.....page or the other. (Layout) e.....							
.....(*Bold)More complex layouts(-Bold) e.....							
.....If you want to arrange your text in multi-columns.....							
.....then unless you use a word processing program that.....							
.....allows you to print out in this form (see Protext,.....							

Figure 5.1 Layouts for half width illustrations

MORE COMPLEX LAYOUTS

If you want to arrange your text in multi-columns, then unless you use a word processing program that allows you to print out in this form (see Protext, Chapter 3), you will need to paste down the text as well as the illustrations. For this you can print out your text in long strips and cut them up and stick them down as required on sheets of paper or thin card. Text printed out in columns is usually known as *galley proofs*. This term comes from the old days of hand-setting metal type. Once the letters were arranged, they were laid in long shallow trays called galleys. From these, prints were made so that the setting could be checked (and corrected) before the type was split up into page lengths.

PRINTING OUT GALLEY PROOFS

Decide on your column width. The easiest way to set out your galleys accurately (if you are happy to work in inches) is to set up your base layout using letter pitch 10 characters per inch (cpi). In this way you can set the left and right margins so that the distance between them is in 1/10ths of an inch. Then if you subsequently change the letter pitch within the document, the text will remain exactly the same width (see Figure 3.8).

SETTING UP PAGE LENGTHS

You can print out your galleys before deciding where to split them for each page, but again it is helpful to set out the pagination in LocoScript so that the page length is as it will finally be required. The calculation is simple: at line pitch 6 (the default setting) there are six lines per column inch. So measure the column length, and set the page body length to the appropriate value. If you are printing out onto continuous stationery (computer paper), then leave the printer option form length to 66 lines so that the printer always moves on to the top of a form correctly at the start of each page. This will avoid printing out over the perforations between sheets. However, if this is to be photocopied or printed onto A4 sheets, there will be a gap at the top or bottom, because standard computer paper is shorter. If you want to use this, you may need to set the photocopier to a lighter setting to avoid the shorter paper showing. It is possible to buy continuous computer stationery in true A4 size, although this is more expensive. In this case, set the paper size to 70 lines as for single A4 sheets.

LAYOUT SHEETS

The text and illustrations must now be stuck down onto sheets as they should appear when finally photocopied or printed (Figure 5.2). You will need to decide on how the layout will appear (in fact this should be done before printing out the text). For consistency, it helps to have pre-prepared layout sheets with a grid. If you have a lot of this work to do they can be printed out in a colour that will not reproduce, such as pale blue. This makes the job much easier. If your work does not warrant the trouble and expense of this, prepare some sheets in advance, drawing out the layout in light pencil (so it can easily be rubbed out afterwards) or in very light blue pencil crayon.

Layout card should be reasonably stiff paper, or light card, around 200 gsm. If you decide that you will need a great deal, draw the layout in black ink and have copies printed in light blue. These will be easy to see when pasting up, but will not photocopy or show up on litho plates.

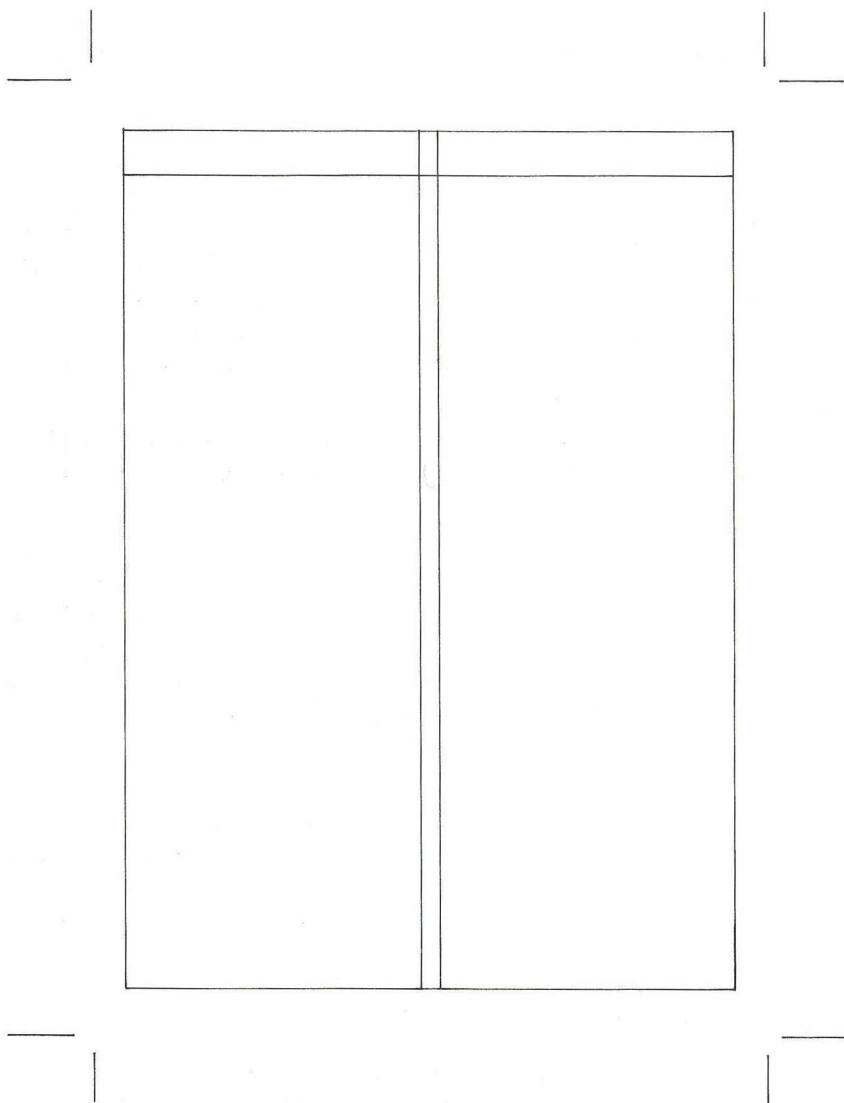


Figure 5.2 Example of a layout sheet

EXAMPLES OF PAGE LAYOUTS

It is a good idea to look at as many publications as possible and try to analyse their layouts. Decide which you think are most appropriate to the one that you are doing, and which look the most attractive. Then you can base your layout on the best features that you have seen. Try to keep the layout simple; it is the easiest to achieve, and often, in the end, the most effective.

INSTANT LETTERING FOR HEADINGS

Instant lettering can be used to set out headings. This is rather time-consuming, and even quite expensive in quantity, but gives very high quality lettering with almost infinite varieties of styles. It is worth setting headings that you may use frequently, such as newsletter headings, etc, and then make a clean photocopy to use for each edition. In this way the original artwork will stay in good condition, and copies can be made whenever needed.

As you cannot be exactly sure of how long the final heading will be, if you want to centre the line it is best to set the lettering on a separate piece of paper, and paste it down in place when it is finished.

The more established makes of instant lettering (such as Letraset, Mecanorma, etc), come in large sheets with a lot of letters on. If these contain more letters than you need, they may get dry or damaged before you can use them up, proving even more expensive. Small sheets made by several companies are available from many stationers' shops, which have far fewer letters, but probably enough for small jobs.

SEPARATED ARTWORK

If your final document is going to be printed in more than one colour, by a professional printer, you will need to prepare suitable artwork. If the job is very simple, and the different colours do not overlap each other, then it may be sufficient just to let the printer know which parts are to be in which colour. Either supply a photocopy of the artwork with this information unambiguously marked, or use an overlay of tracing paper with the different areas clearly shown.

If the artwork is more complex, or if you are going to do the reproduction yourself using a spot colour photocopier (*qv*), then the matter to be printed in each colour should be pasted down onto separate

sheets. Each image should be accurately positioned so that when finally printed out the different colours will be in register. There are several ways of going about this.

One way would be to make the artwork in the usual way but to produce several copies (or photocopies) and obliterate those parts not required for printing (paste white paper or self-adhesive labels over, or use correcting fluid or gouache). Each colour should be represented by one sheet of artwork with all the items to be printed and the rest erased.

Another method (more suitable for sending to a printer) is to use *overlays*. The base sheet should be oversize, and preferably on stiff card. On this could be pasted the base artwork; say, that to be printed in black. Over this, securely taped along one edge, spread a sheet of tracing paper onto which can be drawn or pasted the matter for another colour. Accurate registration is easier as the base artwork can be seen through the tracing paper. More layers can be added as necessary. Each sheet should have corner cutting marks accurately drawn, and should be clearly marked in the margin with the ink colour to be used.

TRIMMING THE ARTWORK

First you will need some way of cutting up the text and illustrations prior to pasting them down. The simplest equipment here is a pair of scissors, but with scissors it is not always easy to cut in very straight lines close to the edge of a column of text or around an illustration. A scalpel (or sharp craft knife) run down a straight edge is better, but you will need a suitable surface on which to cut. If the straight edge is a perspex ruler, which makes it easy to see exactly where you are cutting, it is very easy to nick the edge and damage it. Be sure to hold the knife flat against the edge so that the sharp part does not cut into the plastic. Be careful too that the tip of your finger does not overlap the edge and get in the way of the knife (the blood can spoil the artwork!).

Cutting Surface

Be sure to have a safe surface underneath your artwork when you cut. A piece of carton can be used and changed frequently. The best cutting surfaces, although more expensive, are the specially made dense plastic cutting mats (Figure 5.3). These are made of green rubber-like material which allows the cutter to bite into it, but the surface re-seals itself afterwards. They are available from graphic art suppliers in various sizes

from 18" x 12" (450 mm x 300 mm) and are also in a translucent material.

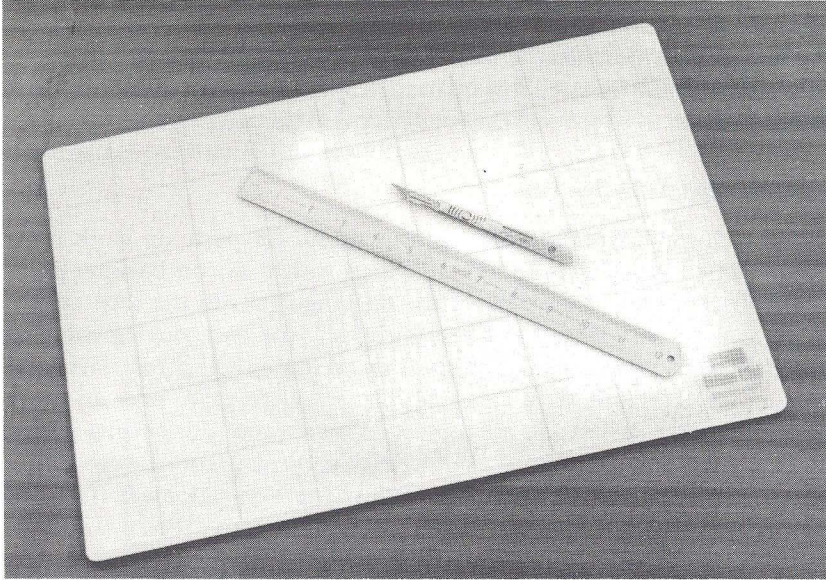


Figure 5.3 Plastic cutting mat

Rotary trimmer

A very useful, and safe, device if you have enough use to justify it is a rotary trimmer. These are most easily available from photographic shops. They are the modern replacement for the old-fashioned guillotines, but here the cutter is a wheel which runs along a straight steel edge. They are perfectly safe to use, and they can trim very close to the edge of the paper or light card without pulling or tearing.

STICKING DOWN THE ARTWORK

There are two basic requirements for the method of sticking down the artwork on the layout sheet, first that it is invisible, and second that it will allow for changes and corrections to be made.

Clear Adhesive Tape

For simple jobs you can simply tack down pieces of text with clear adhesive tape. The invisible type is best: this looks opalescent on the

roll, but because it has a matt surface, it is difficult to see when it is stuck down. Use small pieces, and try not to cover any parts of the text or diagrams. The final assembled document will not be very robust, but with careful handling should get as far as the photocopier in one piece. You may need to adjust the photocopier to the 'light' setting so that the edges of the tape do not show up in the copies. This method is not really suitable if you need to send the artwork off to the printers.

Double-sided Adhesive Tape

Another form of adhesive tape that is useful for paste-up work is the double-sided type. This comes rolled up with a silicon backing paper between each turn. One side of the backing sticks to the tape slightly more than the other so that when unrolled, tape and backing come off together. It can then be cut and stuck down like ordinary adhesive tape. When you are ready to stick something over the tape, peel away the backing so that the second adhesive side is exposed. For pasting up text and illustrations, you do not need to stick down the whole area; a piece in the middle will hold adequately until the artwork is copied. This also allows you to line up the piece that you are sticking down while the backing paper is still in place. Hold down one edge of the artwork so that it stays in place, lift the rest and peel off the backing. Then smooth down the artwork so that it is stuck in place. For very small pieces, stick the double-sided tape to the reverse of the artwork, and trim the two to size together before peeling off the backing and sticking down in place.

The adhesive on double-sided tape will eventually soak through thin paper and discolour it, so should not be used for anything that will be needed again after a week or two.

3M Scotch Spraymount

This is a clear adhesive supplied in aerosol cans, which provides an instant bond, and is designed for paste-up work. It allows the artwork to be pulled up and repositioned before it dries. While it is still wet it will allow a little 'slide' so that the pasted-down item can be lined up exactly. On thin paper, it will soak through and stain eventually, say in a year or so, but on thicker paper will take even longer.

Special precautions need to be taken when spraying. The spray is highly flammable and so of course should not be sprayed near naked flames. Neither should it be inhaled, so make sure there is good

ventilation. Being an aerosol, it is not possible to aim the adhesive at only the artwork, and so you should make sure that stray adhesive does not spoil anything important. The best way to do this is to construct a 'spray booth' from an old cardboard carton. Cut an old carton as shown in Figure 5.4 and line it with old newspaper. This should help prevent the spray going everywhere. Change the newspaper frequently to avoid adhesive transferring to the front of your artwork where it could attract dirt and get permanently marked.

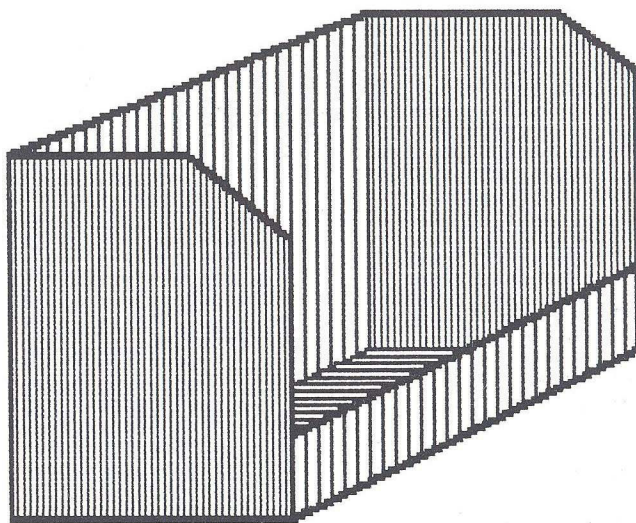


Figure 5.4 Spray booth

When you have finished spraying, turn the aerosol upside down and press the tip. This will send clean propellant to clear the nozzle. If not done, the adhesive there will harden and completely clog it up. You can remove anything stuck down with Spraymount by soaking it with lighter fuel, white spirit or specialist solvent thinner. Allow it to soak in well and soften the adhesive before trying to lift the corner with a scalpel. The text or artwork should lift away easily. These solvents are highly flammable, and all precautions should be taken to avoid accident or inhaling fumes.

Two other grades of aerosol adhesive are available, Scotch Photomount for a permanent bond, and Scotch Displaymount for heavy duty work.

Wax

Wax is the preferred method of most professional paste-up artists. It is faster, cleaner, and (if a lot of work is done), most economical in the long run. A layer of wax is applied to the reverse of the copy which will stick to the layout sheet only when burnished down. Even after burnishing, the copy can be pulled up and repositioned using the same wax coating.

Waxing Machine

A waxing machine (Figure 5.5) has an electrically heated reservoir of molten wax. The artwork is passed between motorised rollers, the lower of which dips into the wax and transfers an even coat to the lower surface. As the wax gets used up, it needs to be replenished with blocks of solid wax. Unfortunately waxing machines are very expensive, and this restricts their use to graphic design studios.

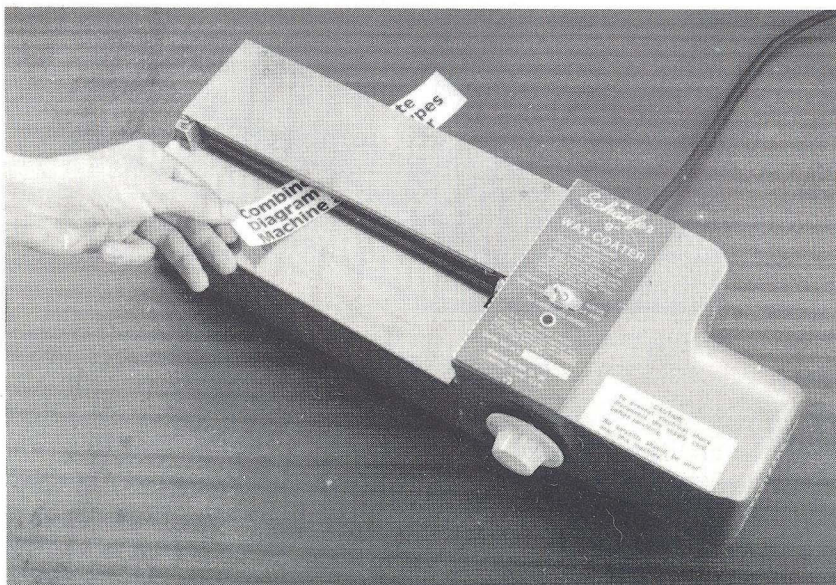


Figure 5.5 Waxing machine

Hand Waxer

A cheaper alternative to the waxing machine is the hand waxer (Figure 5.6). A small reservoir, also electrically heated, and a roller are fitted to

a handle, and the whole is rolled over the upturned artwork. This has to be done on layers of old newspapers to soak up any wax that goes over the edges.



Figure 5.6 Hand waxer

Burnishing Down

Waxed artwork will only stick down properly if well burnished. This is done with a flat stick with a bevelled edge. Take care not to damage the artwork. A cover sheet can be used to protect it — siliconised paper is ideal, the backing sheets from instant lettering will do.

Adhesive Stick

For those who only do a small amount of pasting up, the adhesive stick is a useful standby.

Correcting Fluid

It is often difficult to avoid the edges of pasted up artwork showing. Painting the edges white will usually overcome this. Typist's correcting

fluid is useful as it is easily available and dries quickly. It cannot be used to correct photocopies, however, because the solvent in the fluid mixes with the photocopy toner and it turns a murky grey. It does not seem to matter how many coats are put on, it still comes through. In this case, white water-based gouache available from art shops is better.

MULTIPAGED DOCUMENTS

If your document is to have more than one page, then you will need to give some consideration to how the artwork for the various pages is arranged so that it will appear in the correct page order when completed. If you are simply printing on two sides of a single sheet, then separate artwork is required for each page (and printed one after the other). If the finished page is to be smaller than the paper size printed by the duplicating machine, see 'work and turn' in Chapter 8.

Paste up Two Pages Side by Side to Produce Four Sides per Sheet

Sometimes known as *fly leaflets*, these are simple to produce using a photocopy machine, or to prepare for sending to the printer's. They are more difficult to produce in a stencil duplicator, unless you have access to a scanner, because of the difficulty of printing out artwork sideways. For an A5 booklet it is better to print out each page to A4, then reduce at the photocopying stage to A5 — the improvement in appearance can be quite striking.

Backing up Pages

If you are creating a multipaged document, then printing the results on both sides of the paper can reduce the amount of paper used. A commercial printer will be able to do this easily, but even if you do the reproduction yourself on a photocopy machine, with a little organisation it is not very difficult.

You will need to work out which pages back onto which (see 'Imposition' below). Some word processing programs (including LocoScript) allow different layouts for odd and even numbered pages. This allows, for example, page numbers to appear at the outer corners of double page spreads, and the book or document title to appear as a running head on the left-hand pages, but the chapter title as a running head on the right (as with this book).

You will need to be methodical when you are photocopying and

collating. There is a temptation to do a few extra of each for safety's sake. This is a temptation to resist, as the number of sheets of paper used will soon add up. Do a very small run with just one or two pages to establish your method, make notes of how it is done, and then try to be as economical as possible.

It is best to devise your own working procedure, based on the photocopier that you are using, but here are some suggestions:

- Print all the odd numbered pages onto one side of the paper.
- Once the odd pages are complete, the even pages can be printed on the reverse side. It will help if you do them in a logical order, so find all the page 1's and place them back in the feed tray of the copier. The correct order that they should be in should have been determined in the practice run.
- Back up page 4 behind page 3 and so on.
- Keep your notes for next time (even if you are sure that you will remember).

Some photocopiers work much better at printing on both sides if the copy paper is placed a special way up for the first pass. This is because the heat used to fix the toner can cause the paper to curl slightly, making it unwilling to follow the machine's paper path the second time through. Paper tends to curl towards the side that is heated. If that is the side to which the paper tends to curl most anyway, then the curl will be still greater. If you find difficulties with the paper sticking in the machine, make a note of the way that you place the new paper in the feed tray. Some makes of plain copy paper have an arrow marked on the packet to indicate the way that the paper should be loaded to avoid this problem.

Imposition

If your final document is to cover more than four pages, you may wish to assemble it into a folded booklet form. The assembly of each page of artwork so that the final result has the correct pagination is known as the *imposition*. If you will be copying the results at the same size, then the artwork pages will be A5, pasted up onto A4 card, but for extra clarity, the artwork could be done on A4 pages, pasted onto A3 card, and the results printed by reduction onto A4 paper. Whichever way you choose, you will need to calculate the correct imposition.

Calculating Page Numbers

For this type of booklet, the total number of pages must be a multiple of four. There is a very simple way to work out which pages go next to each other in the artwork. On the outside surface of the booklet will be the first and last pages. If you open out the cover, page 1 will be on the right, and the last page on the left. Therefore the sum of the page numbers on that sheet is:

$$(\text{total pages in booklet}) + 1$$

Inside the cover will be page 2 and the last page but one. Therefore the sum of the page numbers on that sheet of the artwork will be:

$$(\text{total pages in booklet} - 1) + 2$$

which is the same as:

$$(\text{total pages in booklet}) + 1$$

So we have established the general rules for assembling the pages on the artwork:

- on each sheet, the sum of the page numbers is the total number of pages in the booklet + 1;
- the even numbered page of the pair goes on the left, the odd numbered page on the right;

and when you come to printing or photocopying the pages back to back there is one more rule:

- any odd numbered page is printed back to back with its next higher even number.

$$(\text{Left hand page number} + \text{right hand page number} = \text{total number of pages} + 1)$$

The rules of imposition are illustrated in Figure 5.7. In this case, an eight-page booklet, the sum of the page numbers on each sheet of the artwork is:

$$(\text{total number of pages} + 1) (9 = 8 + 1, 7 + 2, 6 + 3 \text{ and } 5 + 4)$$

In each case the even numbered page of the pair is on the left and the odd numbered on the right. Finally, page 1 is backed up (printed back to

back) with page 2 (and 7 with 8) and page 3 backs page 4 (and 5 with 6). These same general rules apply for any multiple of four pages. You can also test this theory by pulling a newspaper apart.

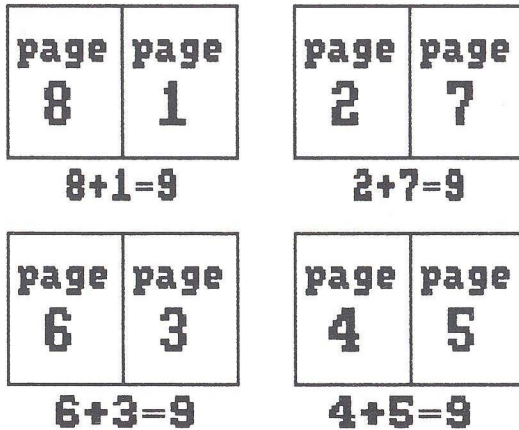


Figure 5.7 The Rules of Imposition

ADDING ILLUSTRATIONS

As well as adding valuable information to your documents, illustrations will help to make them look more interesting. Illustrations fall into two categories, known as *line* and *tone*. Line illustration is the term used to describe pictures and diagrams that consist only of solid colour and white (usually black and white) but no intermediate tones, while tone illustrations are those containing shades of grey, such as photographs.

Line Illustrations

There are several methods of producing line illustrations. If you are artistically inclined, then this will be no problem. Most people can draw diagrams. They will reproduce better if you use a good drawing pen. You can trace over photographs by spreading a piece of tracing paper over the photograph and holding it down with masking tape. Use a drawing pen such as a Staedtler or a Rotring, or if these are not to hand, a roller ball with black or red ink (red ink photocopies as black). Roller ball pens are cheaper, but the lines produced are not as fine. The tracing can easily be copied in a photocopier if you place a piece of white paper behind it. The photocopy can then be pasted onto your artwork.

Graphics Packages

Several packages are now available for the Amstrad PCW series which allow the creation of drawings and diagrams directly through the computer and printer. Some also allow a degree of computer-aided design. For speed of use, and to draw freehand, all these packages really require something more flexible than the keyboard for input, either a lightpen, mouse or digitiser board. These packages produce only graphics, and do not attempt page make-up or full desktop publishing. Such packages are discussed in the next chapter.

Electric Studio

A suitable graphics package is supplied by The Electric Studio Ltd with their lightpen or mouse, and these are all described in the next chapter. The desktop publishing packages also include graphics routines. Whether you find any of the graphics packages satisfactory will depend on the purpose of your documents, and whether you are any good at drawing. These programs can be fun to use, but the results cannot compare with well-drawn artwork. The main problem (this is also the limiting factor with the desktop publishing packages) is the low resolution of the computer system, so that diagonal lines become stepped, and rather strange things happen to circles and ellipses. But for drawings and diagrams that consist mainly of vertical and horizontal lines, tables or forms, they can be quite useful. There is a full description of the Electric Studio Art package in Chapter 6.

DR Graph

This package, supplied by Digital Research, allows different forms of graphs to be generated (Figure 5.8). Rather than working like a graphics package, *DR Graph* uses data entered through menus, although it allows considerable flexibility in the actual presentation of the graph. To get an actual graph as you want it can take some considerable time. Although at every stage you can preview the results on the screen, it is only when it is printed out on paper that the true effect can be judged.

The package is ideal for producing standardised graphs, where the effort of setting out a graph is only needed once, and can be used later for different sets of data. In fact, once the layout has been worked out, data can even be entered straight from spreadsheet packages such as *SuperCalc*.

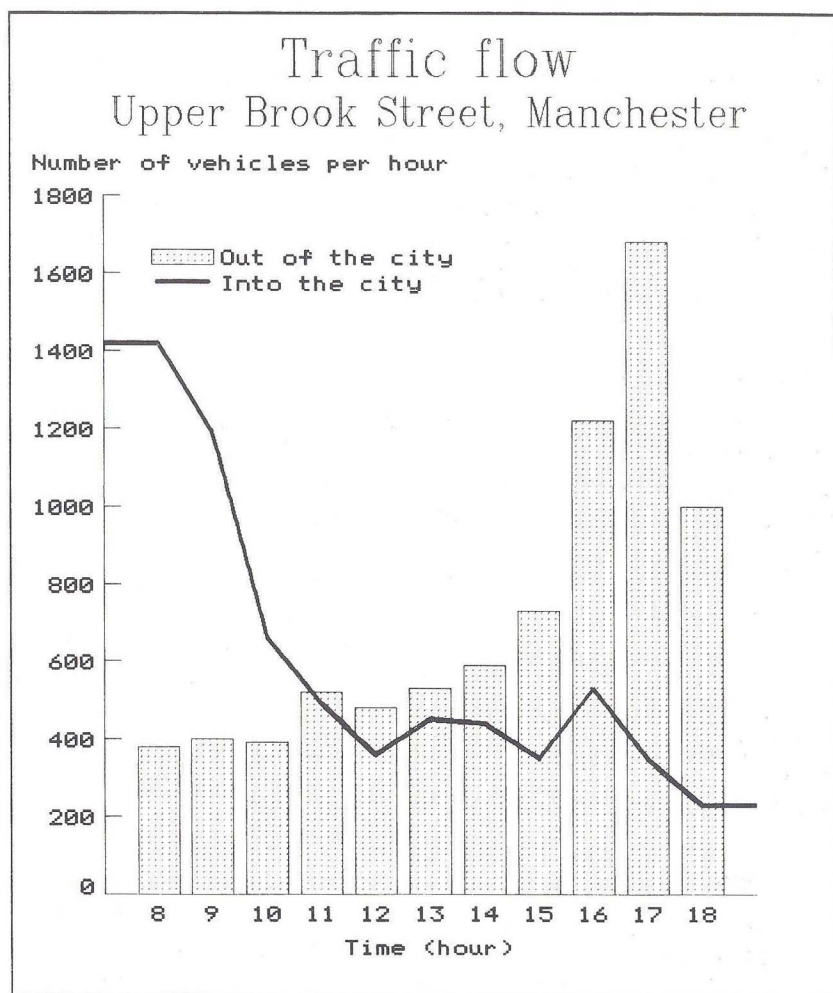


Figure 5.8 Sample graph from DR Graph

The graphs can be produced in several different sizes, up to full-page, so are suitable for producing overhead projection transparencies (particularly if colour overlay film is applied afterwards (see Chapter 9). Up to four graphs can also be printed out on the same sheet, so full-page layouts can be created that do not need much pasting up.

Enlarging and Reducing

The simplest way to enlarge or reduce line illustrations to fit your documents is to find a suitable photocopier. Many photocopiers are able to reduce the size of illustrations by a factor of 1.4. This is to reduce documents to the next *A size* (see page 141). Reduction often improves the appearance of illustrations. Be careful though that fine detail is not made too small for the final reproduction method. Some elaborate photocopiers (usually only available at photocopying services) can also enlarge, although this does not usually improve the apparent sharpness. Remember that no amount of enlargement will introduce detail that is not there to start with.

Another method of enlargement or reduction is to make a photographic negative and print. For success this needs to be done on a special high-contrast film, and this technique is described in Chapter 9. Finally, many instant print services can enlarge or reduce illustrations for you.

TINTS

Photocopying and printing processes are only capable of reproducing solid tones. This presents no problem with text, or line illustrations where the image is black (or solid colour) and white. If you want to reproduce tones, that is shades of grey, (for example, line drawings with areas shaded, or photographs), then techniques are needed to convert the tones into a printable form. This is usually a method of transforming the tone into a fine pattern which, while still composed of solid colour and white, will give the impression of an intermediate shade. Computer graphics packages have suitable routines to fill areas with different patterns, and photographs will need to be *screened* which will be described later, but hand drawn line diagrams will need to be filled by other methods.

The simplest way to achieve an even fill pattern in line drawings and diagrams is to use adhesive tints. These are available from instant lettering manufacturers; also known as photomechanical tints, they are available in many different types. First of all there are regular *halftone* dot patterns. These are available in different dot pitches, and different shades of grey. You will need to choose a dot pitch which is suited to the method of reproduction that you use. Too large a pitch and it will appear distracting, too small and it will not print well.

The shades are described as percentages. This refers to the area of the tint that is covered with ink. Therefore a 50% tint has dots which cover half the area and the paper at that point will reflect half the light that falls upon it. A 30% tint will appear lighter, a 70% tint darker (Figure 5.9).

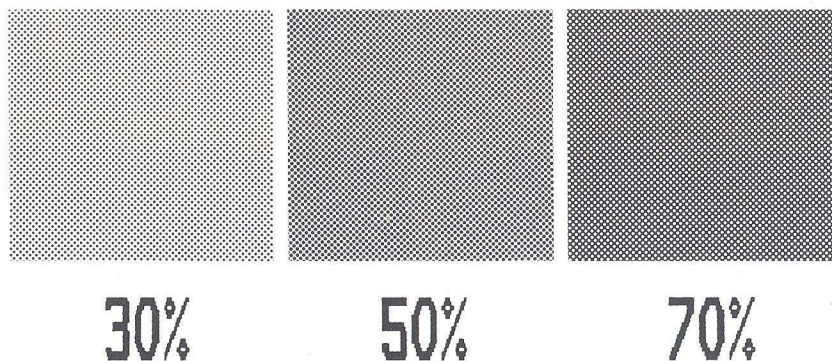


Figure 5.9 Sample tints

The best way to find out what size dot pattern and percentage will suit your reproduction process is to use the sample page from the catalogue. This will have reproductions from different sizes and percentages of tint. If you are photocopying the final result, make a photocopy of the page and see which of the samples reproduces best. You will probably find that 65 lines per inch (26 lines per cm) is the finest that can be easily reproduced. Remember that if you are going to reduce your illustration, you should use a larger tint, or reduce the outline first and then add the tint when it is at the correct size.

Applying Tint

The tint comes printed on a transparent sheet with a fairly low-tack adhesive on the back. There is a siliconised paper backing sheet. Roughly cut out the shape required, slightly oversize (not too much, as it is quite expensive) and peel it off the backing. Lay it in place on the artwork and gently smooth down. Now with a sharp pointed craft knife or scalpel, lightly score exactly around the outline of the area to be covered. Peel away the surplus tint and burnish down the results (Figure 5.10).

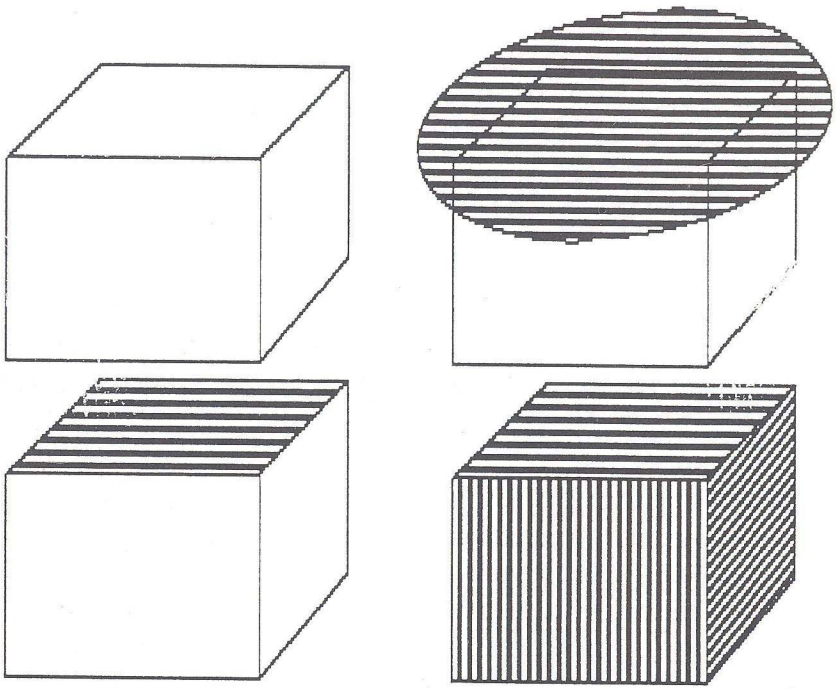


Figure 5.10 Applying tints

PHOTOGRAPHS

Photographs are a very useful source of illustration. They represent reality, and can provide a great deal of information. However, most normal methods of duplication cannot handle the range of tones contained in a photograph. If these are to be reproduced, they need to be specially adapted. Normal printing processes can only handle black (or some other solid colour) and white. To reproduce continuous tone, the shades of grey are usually turned into dots of varying sizes, a process known as *screening*. Screened photographs are usually known as *halftones*.

Suitable Photographs

Not all photographs will reproduce well. In particular, those with a lot of detail in the darker areas are likely to be disappointing. Any of the reproduction processes covered here is going to reduce both the

sharpness and the tonal range. Strong shadows will change the apparent shape of the subject.

Choose photographs that are light, and have bold images. If you are going to take the pictures yourself, try to use very flat lighting if possible (Figure 5.11). Using a flash attached to the camera actually helps here, because it reduces the picture to a recognisable outline of the subject. Some photographs that have a very well defined outline to the subject will reproduce very well if reduced to black and white. The best way to see if this will work is to try photocopying it.

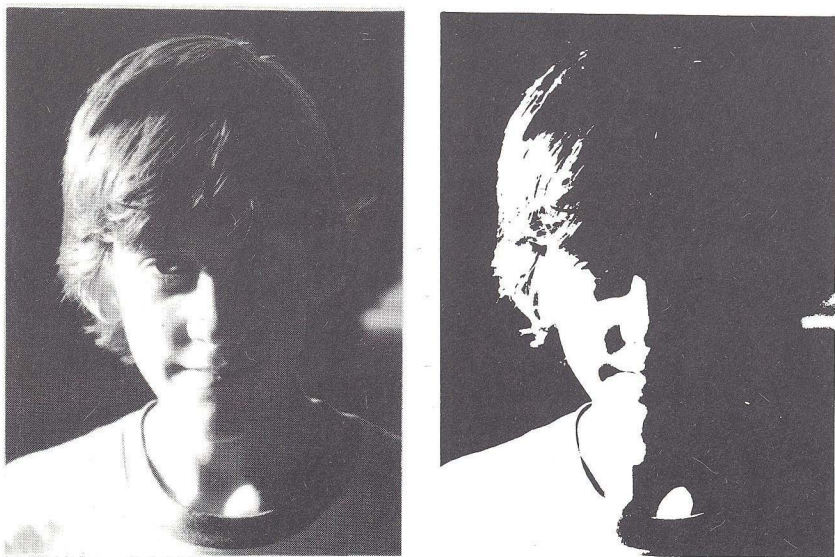


Figure 5.11 Strongly side lit photographs do not reproduce well as the shapes produced are not characteristic of the subject.

Crop your pictures so that all unwanted details are eliminated, and if possible enlarge the more interesting parts. If the background is distracting, you can always trim it so that the subject stands out against white.

MAKING HALFTONES

For photocopying photographs, Letraset make a special white dot screen known as Letracopy HT which reduces the contrast of the photograph and improves the quality of the copy. The screen is printed

on a transparent sheet and can be used as often as required. If your page contains both photograph and text, the sheet of Letracopy HT can be cut to fit the photograph and lightly tacked down over it. With care, the screen can be used over and over again. The success of this technique will depend very much on the actual photocopier that you use and to a large extent, on the type of photograph. As before, photos that rely on a large amount of detail in the darker tones are not likely to reproduce at all well. Photographs largely consisting of lighter tones (*high key* photographs), particularly if they have bold outlines, are most likely to be successful.

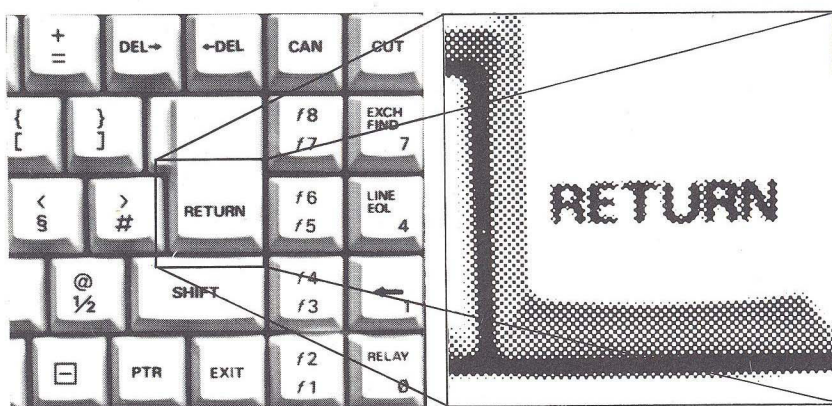


Figure 5.12 Enlarged half-tone

Any photographs to be reproduced by litho printing will need to be properly screened. This is a skilled job, and can be left to the printer. Instant print shops also offer a service for doing this. The task is to convert a continuous tone photograph into just black and white, so that when it is printed it will give an optical illusion of the full range of tones, from white through greys to black (Figure 5.12). This is achieved by copying through a special screen that converts the picture into a pattern of dots. The dots will be very small where the original picture was light in tone, and very large where the picture was dark or black. When the screened print is seen from a normal viewing distance, it appears to be composed of the full range of tones.

Screen sizes for photocopying

Like mechanical tints, halftone screens come in a range of rulings. In general use these range from 65 dots per inch (26 dots per cm) to 300

dots per inch (79 dots per cm). The finer the screen pattern, the smoother the final result will appear. However, the actual ruling that can be used will depend on the total reproduction process in use. For example, newspapers which are printed on lower quality paper have to use a coarse screen of 65 dots per inch, whereas fine quality printing on art paper can use 300 dots per inch. If you are using the services of a printer or a print shop, they will advise on what will be suitable.

Halftone screens

Screens are available in various line pitches suitable for different purposes. Professional graphic art screens are available in large sizes but are very expensive, and need to be handled with great care, as any marks will show up on the final screened prints. Relatively inexpensive screens are supplied by Polaroid (UK) Ltd in 65 or 80 dots per inch. These are 6 cms by 9 cms and are really intended to go in the back of large cameras using Polaroid black and white instant film. In this way screened prints of products can be made instantly to be pasted directly onto artwork. The sort of application where this would be useful is in small product catalogues, or instruction manuals.

Video digitisers

Two companies, Electric Studio and Rombo, supply video digitisers. These are an electronic method of converting a continuous tone image into one that can be entered and manipulated by a computer graphics package. The input is through a video image, which would be most conveniently produced by a black and white video camera. The video signal is scanned by the digitiser, and the image converted into a series of tones (Figure 5.13). The Electric Studio scanner gives an image which can then be manipulated in any of Electric Studio's graphics packages, while images from the Rombo scanner can be used in either *Fleet Street Editor Plus*, or *The Desktop Publisher* (see Chapter 7). The method is convenient but the results cannot be compared with properly made halftones (or even screened photocopies). The digitisers cost about £100, and need the graphics package and a video camera to make them work.

Scanners

A new device to help PCW users incorporate existing line illustrations into a computer graphics package is a scanner called *MasterScan*,



Figure 5.13 Video digitiser output

supplied by Database Software. A paper illustration is scanned like a television image; not electronically as with a digitiser, but mechanically. A head, comprising a small light source and a photocell to measure the light reflected, passes to and fro across the illustration. The ingenious feature of this device is that the PCW's own printer is used to provide the transport mechanism, thus keeping down the cost a little. The scanner is best suited to reproducing line illustrations, but can also be used for photographs, although the shades of grey in these are reduced to just black and white. This can be quite effective with some photographs where there is a strong outline to the image.

The scanner was first introduced for Amstrad's CPC series of computers, but has been developed by Database Publications to be part of The Desktop Publisher package (see Chapter 7).

USING REAL COLOUR PHOTOGRAPHS

For situations where colour photographs could be usefully included in

a short run, the solution is to use real colour prints. Many commercial photo-finishers can now turn your colour negatives into small self-adhesive prints, ideal for sticking onto house sale adverts and all sorts of other documents. At the time of writing, these prints range in cost from 8p each for prints 2½" by 3½" in runs of 25, to 63p each for runs of 7" by 5", although this latter drops to 32p each for runs of 250.

COPYRIGHT

All original works are subject to copyright. The rules generally are that the copyright remains the property of the copyright owner for 50 years. Who the copyright owner is depends on whether the work was originally commissioned.

If you are obtaining your material from a museum, or picture agency, then the print that they supply you with will be their copyright, so as well as the charge for supplying the print, they will expect a reproduction fee. This fee will be in line with what book and magazine publishers can afford, and will seem quite expensive to those producing more modest documents. It would be prudent to find out exactly how much it will cost before committing yourself.

SOURCES OF ILLUSTRATIONS

If you create the illustrations yourself, then there is no problem with copyright. If you use material created by others, then strictly speaking, you may be liable for copyright fees. However, your attitude, and that of the copyright owner, may be influenced by the purpose and distribution of the documents that you produce.

An enormous amount of 'clip art' can be gathered from old newspapers and magazines which can be invaluable for livening up documents that are only used privately. Some publishers sell books of clip art that are free from copyright and can be used by small printing services and the like, for producing leaflets and posters.

6 Mice and Other Input Devices

INPUT DEVICES OTHER THAN THE KEYBOARD

User friendliness is a phrase invented by computer people to describe systems that are designed to be easy to operate, and that help the user as much as possible. This is becoming more and more important in computer and software design. When it comes to text entry, there is no real substitute (yet) for the keyboard, but when you need to move the cursor around the screen to select commands, or to use a graphics package, the cursor control keys can be slow and cumbersome.

Cursor control peripherals are now becoming widely available for the Amstrad PCW. All require an interface adaptor which plugs onto the edge connector emerging from the back of the computer, which is also used by the Centronics/Serial adaptor.

The software provided with the peripheral is as important as the hardware interface, if not more so. Without software, no computer is able to work. If possible, see anything that you are to buy demonstrated, so that you can gauge how useful and easy to use the software is.

MICE

These were first seen in the early 1980s on a very expensive Apple computer called the *Lisa*. They have since become standard equipment on many micros, and at least four different makes are now available for the PCW (Figure 6.1).

Mice consist of a small plastic box which fits under the palm of the hand. A long thin lead connects the mouse to the interface adaptor at the back of the micro. On top of the mouse, positioned to fall under the fingertips, are two or three buttons. As mouse software does away with

the need for a lot of typing, these buttons act as the most commonly used keys, and perform most of the tasks required.

Emerging through the underside of the box is a roller ball. As the mouse is moved around the work surface, the ball rotates and the motion is detected by two sensors inside. These transmit the vertical and horizontal movements to the software through the interface, causing the cursor to move around the screen. By watching the screen, it soon becomes second nature to move the cursor quickly and accurately.

The amount of mouse movement required to get the cursor from one side of the screen to the other is a compromise between economy of action and accuracy. This is essentially a function of the software, and The Desktop Publisher package allows you to adjust this. If you run out

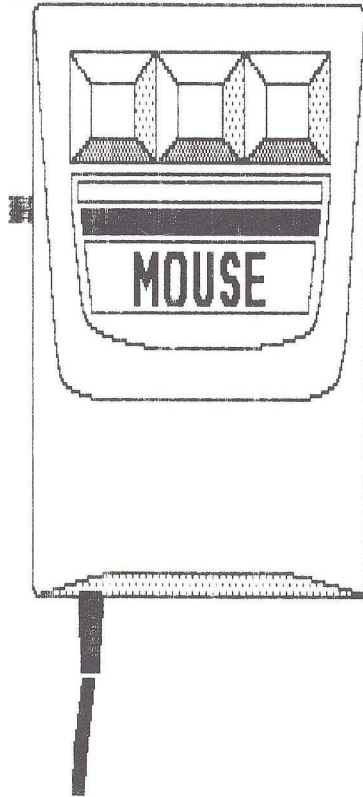


Figure 6.1 Mouse

of space before coming to the edge of the table or bumping up against the keyboard, simply pick up the mouse, move it into the clear before putting it down and continue the motion. It is essential to hold the mouse in the correct orientation, ie, the lead should go under your wrist. That way, moving the mouse directly away from you sends the cursor up the screen, pulling it back moves the cursor down the screen. If you hold the mouse any other way, co-ordination could be very tricky.

Most screen operations are speeded up with the mouse. The only time when the cursor keys are better is when you want to move exactly vertically or exactly horizontally, or when you want to move by a very small amount. In these cases, the keys give more control.

Electric Studio Mouse

The first mouse available for the PCW was supplied by The Electric Studio Ltd. It is supplied complete with a comprehensive graphics package, described below. It can also be used to control Electric Studio's Newsdesk International page make-up program, and can be used with The Desktop Publisher.

The *Art* graphics program which comes with the mouse is very comprehensive and allows the production of good diagrams and illustrations within the limitations of the computer's resolution. The main program is 48 KB long, but together with some other utility programs and sample programs it almost fills one side of a 3" disk, leaving only 18 KB of free space. The package works under CP/M; once this is loaded into the computer, the working copy of the art disk is placed in drive A and the program is loaded by simply typing:

```
A:art[RETURN]
```

The program can be made even more convenient to use by making a self-booting version, including CP/M, *submit.com* and a *profile.sub* file onto the working disk.

MAKING A SELF-BOOTING VERSION OF ART

Load CP/M into the computer. Using *diskit*, make a copy of the program disk supplied with the Electric Studio mouse or lightpen. On the disk are three sample works of art, the files are called *capone*, *parrot* and *map*. You do not need these to make the programs work, so, as there is only 18 KB of free space and you need 47 KB to make a self-booting disk, something has to go. Deleting two of the sample files

will free an extra 44 KB of space. Remember do *not* do this to the master disk, only to the copy that you have made. To delete the files type:

```
era capone[RETURN]
```

```
era parrot[RETURN]
```

(if these are the two that you decide to remove).

The technique differs if you have one disk drive or two.

With One Disk Drive

Place your CP/M disk back in the drive and type:

```
pip[RETURN]
```

The disk drive will whirr and the screen will show *. Type in:

```
m:=a:*.ems[RETURN]
```

```
m:=a:submit.com[RETURN]
```

```
m:=a:basic.com[RETURN]
```

```
m:=a:rped.bas[RETURN]
```

```
m:=a:set.com[RETURN]
```

These are all files that you will need to create your self-booting disk. You will need them present when you put your working disk back into the drive, so they are copied into the memory disk. Now replace the CP/M disk with your *Art* working disk so that the ones needed there can be copied. Type:

```
a:=m:*.ems[RETURN]
```

```
a:=m:submit.com[RETURN]
```

Press the [STOP] key to escape from *pip* and type:

```
m:[RETURN]
```

With Two Disk Drives

Place your CP/M disk in drive B: (the lower disk drive). Type:

```
b:[RETURN]
```

```
pip[RETURN]
```

The disk drive will whirr and the screen will show *. Type in:

```
a:=b:*.ems[RETURN]
```

```
a:=b:submit.com[RETURN]
```

With Either One or Two Drives

Type:

```
basic rped[RETURN]
```

This will load BASIC into the computer, and run the program *rped* which will create an exec program to boot up the Art disk automatically. When the programs have been loaded, you will be faced with the menu screen of *rped*. Press [f1] to edit a new file. Give it the name.

```
profile.sub
```

It is useful to note that *rped* is inconsistent with other programs supplied with the Amstrad; in order to get the cursor to the second part of the filename (the filename extension), you must press either the *full stop* [.] key or else [→]. Then press [ENTER] and the screen will change to the editing page. Now type the required instruction for this file, which is:

```
art[RETURN]
```

When you have done this press [EXIT] *twice* – once to save the new file to disk, and the other to leave *rped*. Once this has been done, test the disk by pressing [SHIFT]+[EXTRA]+[EXIT]. The Amstrad should load CP/M and Art and run Art. Further details of creating self-booting disks will be found in Milan M, *Using the Amstrad Word Processor* (Appendix 4).

USING ART

Art is an extremely easy program to use. The instructions supplied consist of a 15 page booklet but without any page numbers, illustrations or index. However, this is not much of a drawback, as after a few minutes one is using the layers of menus with ease.

When Art first loads (whether or not you make a self-booting disk), you are presented with the first level of menu. This gives a choice of the main functions (Figure 6.2). Once one of these functions is selected you are presented with a level two menu.

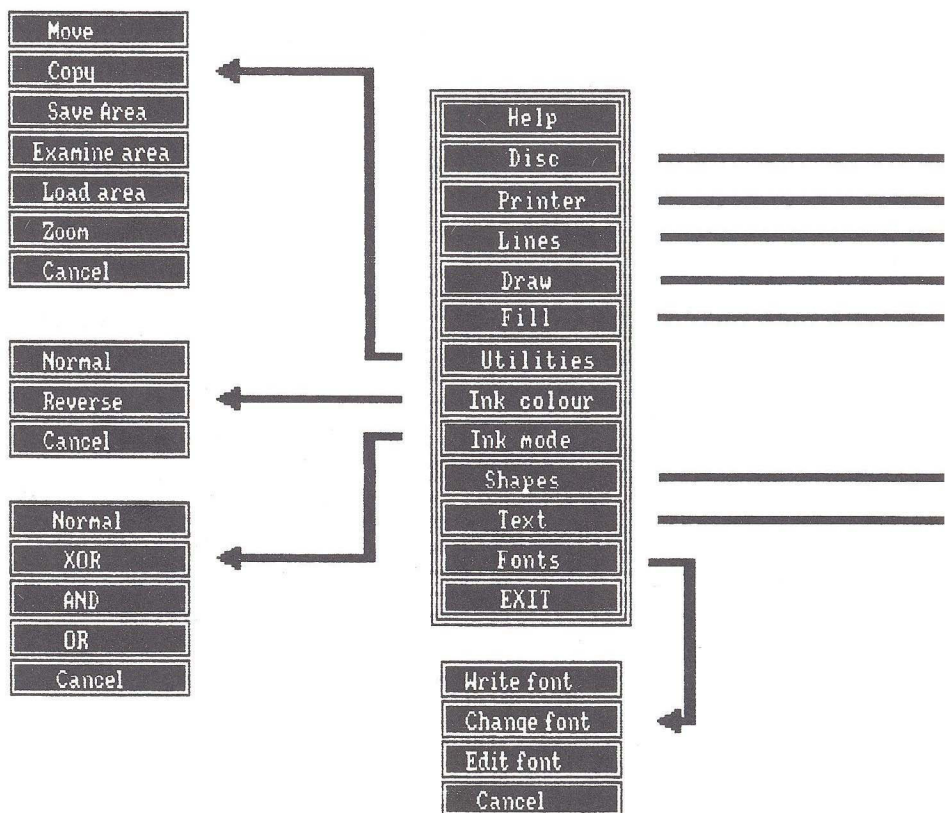
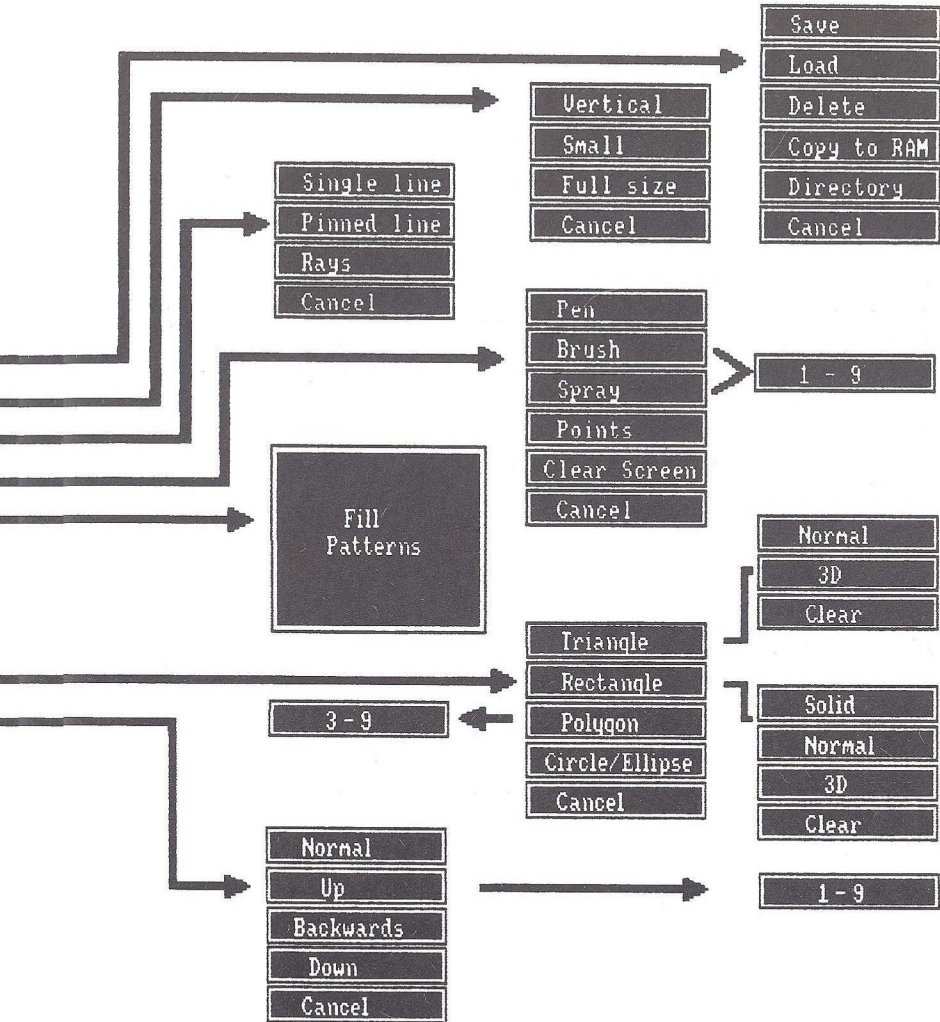


Figure 6.2 Schema of Art menus

The choices from the menus can only be made with either a mouse or a lightpen, but after that, most features can be used with the keyboard. The cursor keys work in the usual way, and several letter keys also perform functions. In fact, it is worth learning them as they can save a lot of ploughing through menus (although using the menu is extremely quick).



Drawing freehand can be quite difficult, particularly if you are learning to use the mouse, but drawing straight lines and box diagrams is very simple. Once shapes have been created including upside-down and mirror images with the font module, these can be copied as often as required (see below, and Newsdesk International in Chapter 7).

Text can be added to diagrams in up to nine different sizes and four different orientations (normal, backwards, up and down). Art could be

very useful for creating such things as overhead projection transparencies (see Chapter 9). Frequently used images can be saved to disk and recalled whenever needed to add to a new illustration.

Font Module

A utility disk called *Font Module* is available as an extra. In fact this is an upgraded version of the Art program described above. As well as a routine which allows you to design your own text fonts (but does not contain the six fonts shown on the disk cover!), there are several other graphic manipulation routines which are included in Newsdesk International but were absent from the original Art program.

Snip Art

This two sided disk holds ready digitised pictures for you to include in your own works of art (Figure 6.3). Whether or not you will find them useful will depend on the sorts of things you do with your Art program, and your sense of whimsy. Certainly, anyone who has seen an advertisement for Electric Studio products, or seen reviews of them will know what to expect. Once loaded into Art, the images can be manipulated at will.

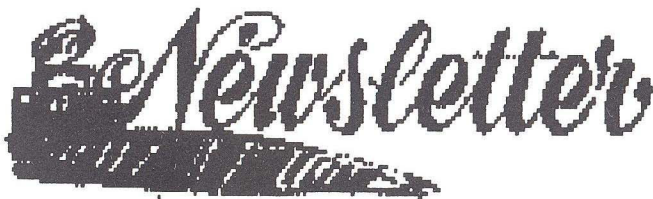


Figure 6.3 Example of snip art

OTHER MICE FOR THE PCW

Other mice have been introduced without graphics packages, but with computer utility programs. However, graphics and desktop publishing packages will be available eventually.

AMX supply a mouse which works with *Stop Press*. The Kempson mouse, supplied with a utilities program, works with Mirrorsoft's *Fleet Street Editor Plus*. The Desktop Publisher is unique amongst the packages described in this book, in that it will work with any of the mice

mentioned. This is thoroughly commendable, and it is to be hoped that other software companies will follow where Database Software lead.

LIGHTPENS

The Electric Studio's graphics package is also available with a lightpen instead of a mouse. A lightpen is a hand-held pen-like device with a lead going to a similar interface unit as the Electric Studio mouse. The pen is pointed at the screen, and when it is close enough, the cursor follows its tip. The pen has a button at the side which is pressed to stimulate some actions, for example to select one of the items from a menu, or to fix a drawn line.

The lightpen, contrary to what its name might suggest, does not emit light, it detects it. The principle works like this — the video display on the Amstrad, like a television set, uses a *raster* display. That is, the whole screen is not illuminated at once, but is scanned by a bright dot, so at any one point on the screen, the dot flies past 25 times a second. The delay from the instant the dot starts to scan the picture, to the instant that it passes any one point will be different. The lightpen has a photocell which detects the exact moment that the dot passes, and a microchip in the interface calculates the delay from the start of the picture and hence the position on the screen that the pen must be pointing at.

A lightpen is of simpler construction than a mouse. There are no moving parts (except for the switch). The disadvantages are that it is more tiring to use for long periods than a mouse, and you may need to sit closer to the screen than you find comfortable.

GRAPHIC PADS

These devices are more often found in computer-aided design (CAD) applications. They consist of a board about A3 in size, and a pen with a lead, rather like a lightpen. In this case the pen is moved over the board which has a network of wires which detect the pen's position. The board is marked with a grid, and because of this it is easier with the graphics pad to place points accurately. Also, plans and drawings can be placed over the board to be traced.

7 Desktop Publishing Packages

At the time of writing, there were three desktop publishing programs actually available for the Amstrad PCW, with at least one more in the pipeline which is to be called *Stop Press*. The first to be available was *Newsdesk International* by The Electric Studio Ltd, makers of the mouse, lightpen and art program described in previous chapters. *Fleet Street Editor Plus* from Mirrorsoft had been advertised for several months before actually being released, and is one of a series of Fleet Street Editor packages for various microcomputers. *The Desktop Publisher* produced by Database Publications was the third on the scene.

The programs, or more accurately, packages — because they all consist of several interlocking programs — really fall into two main categories, which will be referred to as page make-up and desktop publishing. Page make-up programs are really elaborate art programs which allow the user to combine graphics and text into a page format. There will be the usual graphics facilities, plus several text fonts which can be used. However, the page is *stored* as a graphic, so once the text is laid down, any further manipulation of it must be at pixel level. This makes any subsequent editing of text very tedious indeed.

Desktop publishing packages on the other hand store the page as a series of areas, into which text or graphics can be flowed. This allows a certain amount of adjustment to be made to the graphics and text after they have been laid down. The best approach will always be to plan your document in advance, and to check each element as it is created so that subsequent alteration is not necessary, as this is always more time consuming than getting it right in the first place.

Of the products available, or planned, for the Amstrad PCW,

Newsdesk International and Stop Press are page make-up programs, while Fleet Street Editor Plus and The Desktop Publisher are desktop publishing packages.

NEWSDESK INTERNATIONAL

This package comes on two sides of a 3" disk; side one holds the main program, and an overlay program extension, while side two holds the overlay program again, extra fonts and some examples of snip art. As supplied, the program is started by first loading CP/M into the Amstrad, then inserting side 1 of the disk and typing:

```
newsdesk[RETURN]
```

The program is so large that it cannot all be resident in the computer's working memory at any one time, nor, when including all the fonts, even held on one side of a disk. For this reason, various parts of the program are only loaded when required. These parts are in the overlay program, and when they are called from the main program menu, overlay must be present in one of the disk drives.

One of the actions of Newsdesk when it is first loaded is to copy overlay onto the memory disk, so that it is normally there all the time, and the user is not aware of parts of it being loaded. However, if you only have an unexpanded PCW8256, then there will not be very much spare space in drive m:, so overlay is also on side two of the floppy disk to be more conveniently available.

Newsdesk comes with a 58 page instruction booklet. Although it explains the use of the program reasonably well, it does not have page numbers or an index, making searching for particular details difficult. Perhaps recognising the shortcomings of the manual, The Electric Studio now supply an additional 13 page *Guide to Newsdesk International*. True to its title, Newsdesk International is also available in French and German versions complete with translated instructions.

When Newsdesk is first loaded, the screen announces the program and asks whether input will be from the keyboard or a mouse. If you choose the mouse, you can still do most things with the keyboard. Although some actions are much quicker with the mouse, it is preferable to use the keyboard for some of the more delicate operations, such as moving the cursor exactly vertically, exactly horizontal-

ly, or by just one or two pixels. Once you have entered your choice of input, the screen clears and you see the top level menu (Figure 7.1).

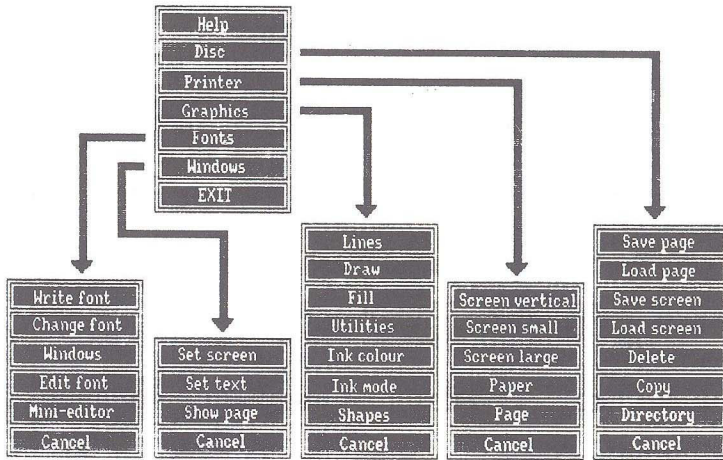


Figure 7.1 Newsdesk International menus

Newsdesk works by creating an image, which is stored as numbers in the computer's memory. This is shown on the screen, and can eventually be printed out. Thus the resolution of the final image is limited by the number of memory locations available. Newsdesk makes up pages which print out on paper 10" × 8", with a total resolution of 928 pixels wide × 728 pixels high. The PCW screen has an available resolution of 720 pixels wide × 240 pixels high, so that in the program's normal drawing modes, the page is viewed through a window which shows 75% of the page width, and 33% of the height.

It is possible to move the window about the page, so that any part can be seen. A zoom mode (Figure 7.2a) will allow you to see a greatly enlarged portion of the page, just 90 pixels wide × 30 pixels high, whereas a view page option (Figure 7.2b) lets you see the whole page to judge overall layout, but slightly distorted, and inevitably, with some of the detail missing.

Newsdesk is completely compatible with Electric Studio's Art package as supplied with their mouse and lightpen, and even offers some extra facilities over version 1 of Art, although most of these could be got by buying the Font Module, which is really Art version 1.2.

Set pixels with SPACE, ENTER to end or STOP/CAN to abort

(RINW)

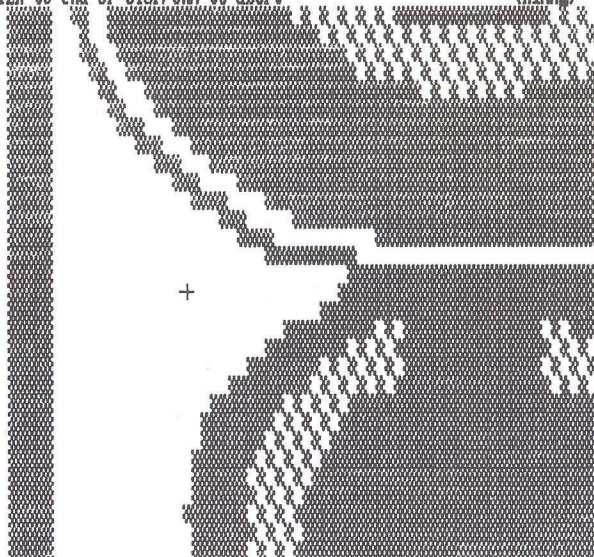


Figure 7.2a Newsdesk International zoom mode

Set screen position
Press space to fix

(RINW)

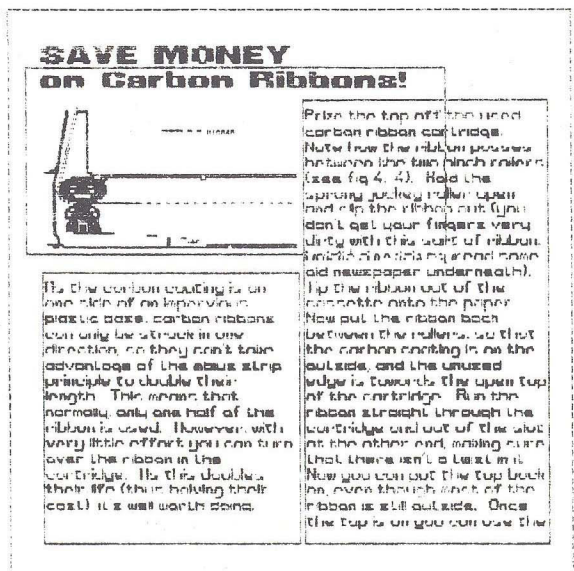
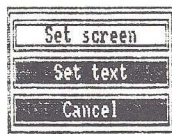


Figure 7.2b Newsdesk International view page

The part of the page seen on the screen during most operations is selected in the *windows* option (Figure 7.2c). The area seen is 75% of the width and 30% of the height. Unfortunately it is not possible to set this absolutely precisely, nor is there a non-printing grid which accurately indicates where you are on the page. However, it is possible to display the current position of the cursor in the top right hand corner of the screen.

Position box over selected area (ALT Expands), SPACE key fixes, STOP exits (RINM)

on Carbon Ribbons!

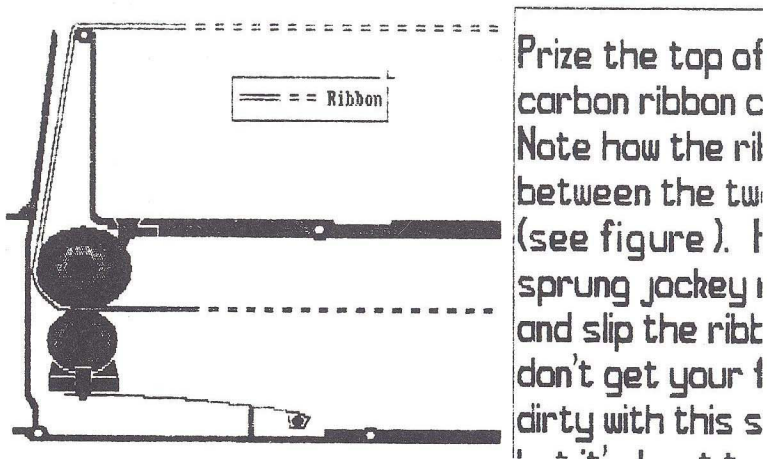


Figure 7.2c Newsdesk International windows option

Text Entry

Text can be entered onto the page in any of the fonts supplied with the program, or any fonts that you create using the font editor supplied as part of the package. The text can be entered, either through the keyboard or from a pre-prepared ASCII file. This latter method is easier, as the file can be created (using LocoScript, Protext or any other word processing package), and checked for content, spelling, etc in the usual way. Unfortunately it is very difficult to estimate in advance how much space the text will take up on the finished page.

The text is placed on the page by creating a window. In order to place a window accurately on the page you need to be very organised. The

cursor position indicator shows the percentage across and down the page, but this is not very accurate, because the cursor can move several pixels in either direction before the actual percentage changes. Also there is no direct way to measure how big the window that you are creating is, unless it is right over at the left hand side of the screen. So, to get a page evenly divided into columns of text or graphics, you will need to calculate the size of the window that you require, create it in the bottom left hand corner of the page where you can measure it, and then move it over to the required position.

It is only possible to create one window at a time as previous ones are forgotten, so it is not possible to set up a dummy page in advance and then fill it. You must create a window, fill it with text or graphics, create another window, fill that and so on. This is a little tedious, and can be slow. An easier way is to create your text in advance, and save the columns as areas. This is rather like printing out galleys, which you can then 'paste down' onto the page, and move around until you are satisfied with the results.

All the text is treated as graphics and can be moved around and modified at pixel level. If a spelling error were to be found, it could be changed, but this would be a very time-consuming process.

NEWSDESK – SUMMARY

Newsdesk International is quite easy to learn to use, particularly if you have previously used the Electric Studio Art program (described in the last chapter). But to use it properly you need to be organised, and have plenty of time, both to create the pages, and to print them out. Be careful to check all the text as you enter it, because any errors will take a long time to correct.

The text created is not wonderful, but a font editor is included which allows you to change any of the typestyles supplied to suit your taste, or to create your own fonts. Again, personal organisation and lots of time are prerequisites for the successful use of this utility.

A full Newsdesk page will take 40 KB of disk space to store; that only allows four pages per side of a disk in drive A, or 17 pages on a disk in drive B. Even after they have been created, you will still need to allow nearly one-and-a-half hours to print out four pages in high quality mode, so 17 pages would take too much time to be useful.

AMX – STOP PRESS

Although not commercially available at the time of writing, a prototype version of *Stop Press* showed some very interesting features. This program will be marketed by Advanced Memory Systems, to be used with the AMX mouse, although the program is designed so that it can be used on its own if required. Stop Press is being designed by the same team who produced the AMX page make-up programs for other popular micros, including the BBC and Amstrad CPC.

Most of the program is held in the computer's memory, so that overlay programs are only necessary for parts that are not used very often, thus saving a lot of disk changing, particularly on an 8256. Apart from one or two unusual and attractive features, the most noticeable thing about Stop Press is the speed of the screen displays. Like the other page make-up programs reviewed here, in the normal graphics mode only part of the page can be seen on the screen at any time. With Stop Press, using the mouse, scrolling around the screen can be achieved in real time.

Where other programs use layers of menus, Stop Press has just one main *Control screen* (Figure 7.3). This is called by clicking a button on the mouse (or pressing the appropriate key). It contains icons (a graphic symbol representing a facility or action) for all the major functions of the program. Once you have used them a few times, the icons are easy to recognise, and are a convenient way to select actions.

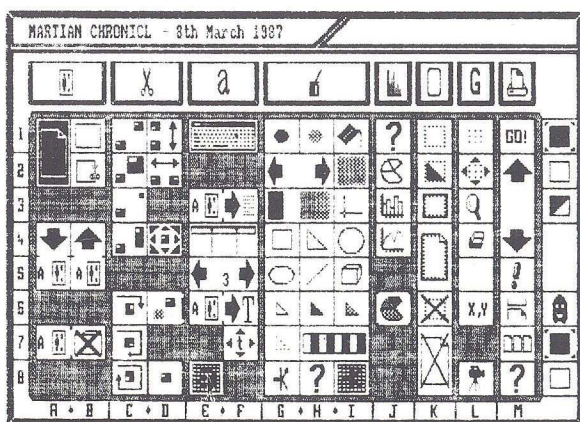


Figure 7.3 Stop Press control panel

Text entry

One of the features present on some page make-up packages but absent from Stop Press is a text editor. However, as the PCW comes complete with one (LocoScript), this does not present a problem. Stop Press will accept LocoScript files, or ASCII files, either from LocoScript or some other word processing program. Of course, you can also enter text from the keyboard, but once on the page, all text is stored as pixel graphics, so any mistakes are very tedious to correct. It is therefore much better to use LocoScript, check the content and spelling and then save on a file to be loaded onto the page when required.

Text can be laid down the whole width of the page, in columns, or to fill a shape. The method of creating columns is interesting. Using the control panel you choose the number of *column identifiers* (CIDs), which appear as triangles along a ruler at the top of the screen (Figure 7.4). Text starts to flow onto the page from the cursor position (this defines the left side of the column); the right hand edge of the column is the next CID to the right. If the column is filled up before the text is finished, the program waits for the cursor to be moved and one of the mouse buttons pressed. Then the text starts flowing again from the new cursor position. In this way, columns can be set evenly, the space between columns can be chosen at will, and it can be done quickly and accurately.

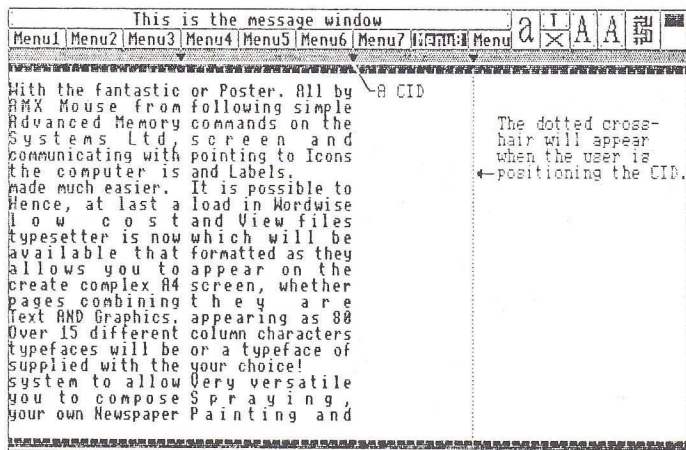


Figure 7.4 Stop Press column identifiers

Only two large fonts are supplied with the package, but there is a font designer routine (one of the two overlay programs). The characters are designed and stored 32 pixels square, which allows reasonable resolution, but can be placed on the page any size between 10 point and 192 point. They can also be stretched in either direction, for tall/thin or short/wide characters.

The other overlay program is an automatic graph creator called *EasyGraf*. This creates line graphs, histograms or pie charts, with automatic labelling, scaling and shading (Figure 7.5).

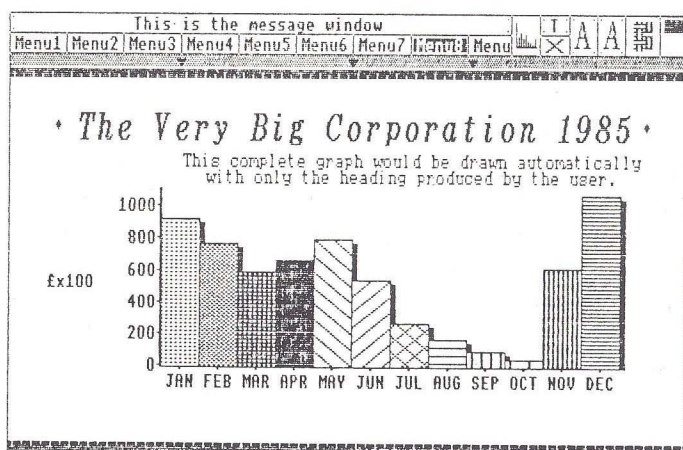


Figure 7.5 Stop Press EasyGraf

Very fast graphics creation facilities are provided, including the ability to create icons which can be moved about the screen before fixing in place. A number of these can be held in the memory at one time, and this feature could be very useful for creating such things as circuit diagrams. It will also be possible to import images from digitisers and scanners.

As with all the page make-up programs, printing out speed is limited by the printer, so as with the others a page will take about 20 minutes; but if *Stop Press* lives up to the promise of the demonstration prototype, then it will be a very useful program, and one that is enjoyable to use.

FLEET STREET EDITOR PLUS

Fleet Street Editor Plus (FSE+) is just one of a group of programs in a

range for a number of different types of computer published by Mirrorsoft Ltd (Figure 7.6). FSE+ falls into the category of desktop publishing package described at the beginning of this chapter. It stores each page as a description of areas, each filled with either text or graphics. As a result, even after these areas have been laid down, the contents of them can to some extent, be edited and altered. Although printing out can take just as long as with the page making packages, 16 to 20 minutes per page, there is more flexibility as there are several features that are unique amongst packages for the PCW. For example, pages can be designed in advance, so that a series of documents can have a consistent format, or a multi-page document can easily be created.



Figure 7.6 FSE+ banner

Loading up Fleet Street Editor Plus

FSE+ is supplied as two disks, both full on each side. One disk, the Master Disk, holds the programs. The other disk holds some quite useful clip art, and a sample page so that you can experiment with the program's features without too much initial effort.

There is an excellent, if rather daunting instruction manual, 193 pages long, well illustrated and complete with index and glossary. Before using FSE+ you are told to make backup copies of the Master Disk. Because the disk supplied is protected, you will need to copy side A: using CP/M and *pip*, while side B: and the clip art disk can be copied using *diskit*.

Once the backup copies have been made, FSE+ can be rather tedious to load into the Amstrad. First CP/M is booted up. Then the backup copy of the Master Disk side A is put into drive A. After about 50 seconds you are asked to place the original Master Disk into the drive, then the backup of side A: again. Following that the backup of side B: is needed. In total, loading up takes about five minutes and involves putting one or other of the disks in the drive five times. It is quite understandable that Mirrorsoft want to protect their interests by making sure that the user does have a genuine copy. However, having to put the original copy into the machine each time that you use it does rather diminish the benefits of having a backup copy.

FSE+ is a large program, or rather a suite of programs. Using a PCW8512, all the necessary program files (no fewer than 23 of them, occupying 306 KB) are fitted into the memory disk, so disk swapping is only needed for the files. However, if you are using a PCW8256 then it will be necessary to swap disks so that overlay programs can be loaded for certain operations. If you have a PCW8512, one slightly annoying feature is that drive B can only be used for reading. This means that advantage cannot be taken of the larger capacity of disks written in this drive.

PARTS OF FLEET STREET EDITOR PLUS

FSE+ consists of three main program parts – a *text editor*, a *graphics editor* and a *layout editor*. With FSE+ you are encouraged: to plan your document in advance (which is good advice); to prepare the various text and graphics elements with the appropriate editors; store them to disk, and then assemble the whole, using the layout editor.

Text Editor

This part of the package allows you to prepare text to be incorporated later into areas on your pages. The editor itself has some word processing features, and you can enter text from the keyboard. For

longer items it is probably easier to input text from LocoScript or ASCII files. If you want to do this, you have to prepare these into suitable files first in the housekeeping section before entering the text editor. Files which can be edited in the text editor have the filename extension '.T'.

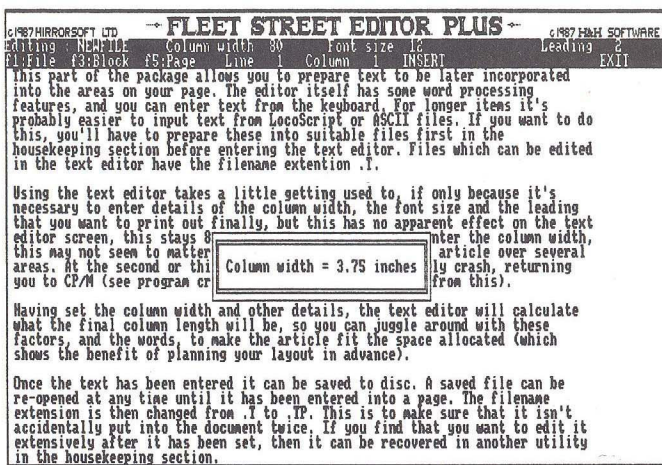


Figure 7.7 FSE+ text editor. Details of column width

Using the text editor takes a little getting used to, if only because it is necessary to enter the details of the column width, the font size and the leading that you want to finally print out, but this has no apparent effect on the text editor screen, which stays 80 columns wide (Figure 7.7). If you do not enter the column width, it may not seem to matter until you try to enter a long article over several areas. At the second or third area the program will completely crash, returning you to CP/M. (*Program Crash* below, shows how to recover from this.)

Having set the column width and other details, the text editor will calculate what the final column length will be, so you can juggle around with these factors and the words to make the article fit the space allocated (showing the benefit of planning your layout in advance).

Once the text has been entered it can be saved to disk. A saved file can be reopened at any time *until* it has been entered into a page. The filename extension is then changed from '.T' to '.TP'. This is to make sure that it is not accidentally put into a document twice. If you find that you want to edit it extensively *after* it has been set, then it can be recovered in another utility from the housekeeping section.

Program Crash

If you do something silly and cause FSE+ to crash, return to CP/M and show the A> prompt on the screen. You do not need to go through the tedious process of re-loading it from disk, simply type:

m:[RETURN]

fse+[RETURN]

The program will restart instantly, although you will have lost the last operation. A program crash is annoying enough — having to spend five minutes re-loading from disk would be infuriating.

Graphics Editor

This section of the program allows you to create graphics elements to be inserted later into pages, or to edit the clip art items supplied with the package. These are stored on disk 2 as graphics pages. There are 26 pages in all, containing 120 items. Another disk containing more clip art items is available at extra cost.

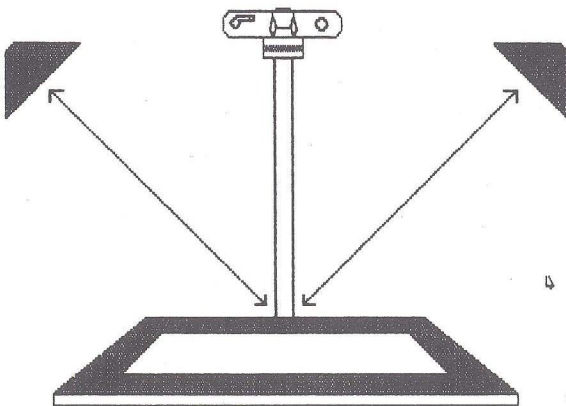


Figure 7.8 FSE+ graphics editor

The graphics editor (Figure 7.8) is adequate rather than extensive, having the usual basic drawing functions, straight line, box, circle and ellipse. It also allows freehand drawing, but without a mouse or lightpen this is rather limited (it is rather limited even if you *have* one of these tools!). There are also fill routines, and zoom-in for detailed additions and corrections at pixel level. It is not necessary to get the size absolutely right at this stage, because during layout assembly the graphic is automatically scaled to fit. However, if you use a patterned fill, then any enlargement or reduction can play havoc with detail, so once again, carefully planning your document in advance will ensure better results.

Once created, each graphic is stored in a separate file on a disk in drive A. It is best to store all the elements for a document on one disk so that there is not too much disk swapping during the layout stage.

Layout Editor

The Layout editor is the heart of FSE+. This program is used to plan pages, and then to assemble all the material together onto page files. It is also used to view the finished pages to check the overall layout, and then to print them out onto paper. The options in this program are:

Create Publication

This allows you to create a new publication file on the disk, into which a dummy page can be loaded. You will need to enter a file name. FSE+ will only allow six characters for this (the other two characters normally allowed by CP/M and the filename extension are used to distinguish between the several files needed for each document). Because of this, the publication file allows a longer description of the publication to be stored, up to 35 characters long, and this is displayed at the top of the page layout screen. This can be a common descriptor for several documents if you wish, but the shorter file name must be unique on any particular disk, of course.

Define Page Dummy

Once the files have been created, the areas on the pages can be defined, to be subsequently filled with either text or graphics. Four different page sizes can be chosen, A4 single sheets, A4 continuous paper, A5 portrait, or A5 landscape. If you want to produce an A5 document and have

access to a reducing photocopier, then preparing the master on A4 and reducing the copies can significantly improve the appearance. Setting up a dummy page is not absolutely necessary; you can set up the areas while you are actually laying out the page, but advance preparation is more likely to lead to satisfactory results. Only one dummy page layout is permitted per document, so if a different layout is wanted on the front page to the others, a separate publication file for that page will need to be set up.

Layout Publication

This stage is the actual assembly of the different elements onto the page. The screen displays the whole width of the page, but only a portion of the height. The ability to see the whole width of the page, together with the ability to display rulers in either imperial or metric units, makes it easy to see exactly where text and graphics are going. As the reproduction is not pixel for pixel, the screen representation is not as clear as the final results will be, but this is preferable to only seeing part of the width of the page. This mode is possible because FSE+ is not assembling the image in memory in the same way that the page make-up programs do. The different areas that have been defined on the page dummy are displayed as dotted lines, which can be switched off if you want to see more easily how the page will print out.

A cursor is moved around the areas to choose where to enter text or graphics. All instructions are entered by pressing a function key as indicated by the screen header, and then by choosing from a pull-down menu. Text can be entered from pre-prepared text files (Add Article), or from the keyboard (Add Heading). Article files will already have the typeface, point size and leading embedded by the text editor when the file was created. If you add a heading, then you will be presented with another menu to choose from. At the end of each article or header, a horizontal limit will be added automatically, and a new item can be added in any space that remains. If text remains in a file when a column or page is full, it can be continued either in another column, or on another page. Graphics can be scaled to fit any space, even changing the horizontal and vertical proportions if necessary, although this is not always desirable.

Fit to Screen

This option allows you to see the whole page on the screen (reproduced

at lower quality) to check for layout before printing out. Printing out takes so long that this is worthwhile. Alternatively, the page(s) can be printed out in draft mode, which is quicker than high quality mode, but not much use for anything except checking the spelling (which should have been done at the text editing stage).

Output Publication

This is for printing out the document. As well as being able to choose between draft and high quality modes, you can choose to use a different printer than the standard PCW one. This has to be Epson compatible and you have to have a Centronics Parallel interface fitted. A different dot matrix printer may not improve the look of the output. A suitable laser printer can be used, and while it will not improve the resolution of the text and graphics (unless Mirrorsoft bring out a suitable printer driver, which they are considering), the printing out could be a lot quicker.

FLEET STREET EDITOR PLUS – SUMMARY

Fleet Street Editor Plus is certainly the most extensive and powerful of the programs reviewed here. The range of facilities is the greatest and the instructions the most complete. It allows you to create dummy pages, and use these for multipage documents with a consistent format. These good points are offset by the fact that it is the most expensive of all the packages, and that powerful features take time to learn to exploit to the full.

THE DESKTOP PUBLISHER

This inexpensive package is delightfully easy to use, and will appeal very much to people who want a simple, quick way of producing pages combining easy to read text and simple graphics (Figure 7.9).

The Desktop Publisher is supplied on one disk, with a small, but comprehensive and well laid out instruction book. Database Software (an offshoot of Database Publications) who supply the package do not have a vested interest in selling mice, so The Desktop Publisher has been designed to work with the Kempson, AMX or Electric Studio mice. This is good news for anyone who already has one of these (other software suppliers please note), as with one, the program is even easier and quicker to use.

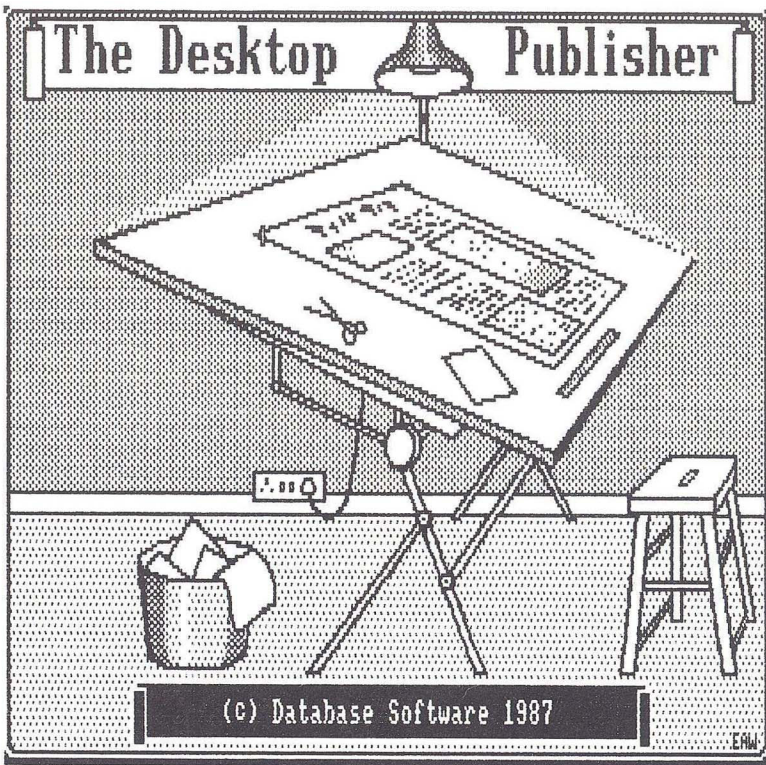


Figure 7.9 The Desktop Publisher banner

Another good feature is the PAD control, which allows you to control the ratio of mouse movement (or number of cursor key presses) to cursor movement. The PAD can be adjusted along a scale from A to F. At A the cursor moves very quickly (but is difficult to control accurately), while at setting F it moves very slowly for precise positioning. The setting can be changed at any time by calling the options menu.

The Desktop Publisher is used by first creating a page file. Then files are created for each area within the page. Each of these areas can be designated as a text window or as a graphics window and given a name. As each window is created, a disk file is opened under the appropriate filename, which at this stage only contains information as to the dimensions of the window. The positions of each window on the page are not final as they can be adjusted later, but the dimensions of the

graphics windows are fixed, as is the width of the text windows. Once these details have been saved to the disk, the various files can be filled with text or graphics as appropriate, using the *text* and *graphics editors*.

When the various files have been filled, the layout of the page can be previewed, adjusted, and when you are satisfied, printed out. This can be in draft or high quality on the PCW printer, or through the Centronics interface to any Epson compatible dot matrix printer.

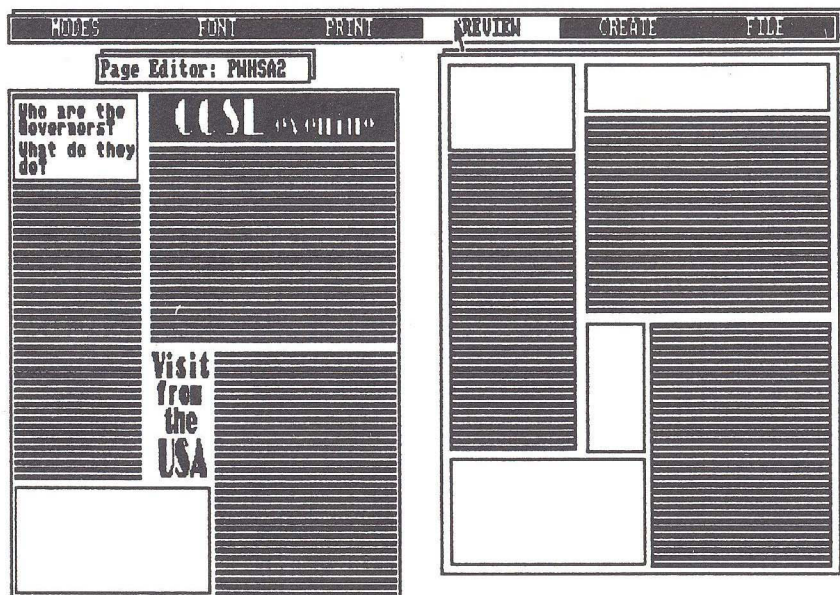


Figure 7.10 The Desktop Publisher page editor screen

Page Editor

The *page editor* is the principal screen of the program (Figure 7.10), from which the main facilities and the other editors are called. The first task after loading the program is to either load up some existing files to work on, or to create some new ones. The page editor screen header has a series of options.

Create

Before any work can start on a page, a file must be created to contain details of the contents using this option. The page must be given a name,

which is then used for the disk file (with the filename extension .PAG). The file is only 1 KB long (or like all small files, 2 KB on a disk in drive B). The file contains the co-ordinates of the various windows that will be printed on the page. Once this file has been created, the program returns to the main header. If a page has been created or loaded into the Amstrad, the *Create* heading is now changed to *Edit*.

Modes

The *modes* menu contains most of the main functions needed to create and manipulate the windows. A rectangle representing a blank A4 page appears on the screen. The Desktop Publisher does not allow for other sizes of page, but an option for A5 would be useful. Of course, the text and graphics can always be restricted to an area equivalent to A5, but this is rather unsatisfactory. A ruler (or grid) on this page would be a useful addition.

Create a Graphics Window and Create a Text Window

Windows are created using these options. First of all a name must be entered; because this will be used as the filename, this must be unique to a particular disk, or else the previous window with that name will be erased. A directory allows you to check filenames already used. The cursor is moved over the blank page on the right hand side of the screen, to the position where the top left hand corner of the window is to go. A point is selected by pressing the *select key* (the PCW [ENTER] key, or one of the buttons on the mouse). Further use of the cursor control keys or movement of the mouse results in a box being opened up. The dimensions of the box are fixed by pressing the *select key*. The box can then be moved around the page until its position is satisfactory, when it can be fixed by pressing the *select key* again.

Graphics screens are shown as open boxes, while text screens are filled with horizontal bars to represent the lines of text. As well as defining the dimensions of a text window, the file also records the font size, which will be that currently selected under the font menu (qv). Creating a window also creates a corresponding file on the floppy disk. Text window files have the filename extension '.TXT', graphic window files have the extension '.GRF'. When the window is first created, the disk file will be empty. Text or graphics are later added in the appropriate editor, but in order to do this the file (and thus the window) must exist.

Move Window

Even after windows have been created, they can be moved around the page at any time by calling this function. The cursor arrow can be placed within a window, text or graphics. Once the *select* key is pressed, the window is picked up and can be moved around with the cursor until the *select* key is pressed again.

Remove window

This function removes a window from a page. However, the file remains on the disk, so the window can be added again later, or to another page.

Add Text/Graphics Window

Existing window files can be added to a page. Even a window that is already on the page can be added again as often as required. This is useful for step and repeat work where small items can be printed several times on one page to save on duplicating small leaflets or tickets, for example.

Show Window Name

It is quite easy in the page editor to forget which window is which, particularly the text windows, which all look the same, even in preview mode. With this function, placing the arrow cursor within a window and pressing the *select* key causes the window name to be displayed.

Show Text Font

This option shows the font specified in any selected text window.

Fonts

The fonts available for use in the text windows are the normal fonts used under CP/M or LocoScript, with the exception of proportional spacing and 15 pitch. Thus all the usual pitch sizes are available. Only one type size can be used in any one window, but different styles can be used within the text such as bold, italic, etc. The font for a window is chosen using the font menu, which must be selected before a window is created.

Fonts available are:

Pica (10 characters per inch)

- Elite (12 characters per inch)
- Condensed (17 characters per inch)
- Double Pica (5 characters per inch)
- Double Elite (6 characters per inch)
- Double condensed (8.5 characters per inch)

Having created page and window files (or loaded existing ones from disk), the next stage is to fill the windows with text or graphics using the appropriate editor.

Text Editor

The *text editor* (Figure 7.11), provides simple but adequate word processing facilities, and also allows text to be imported from ASCII

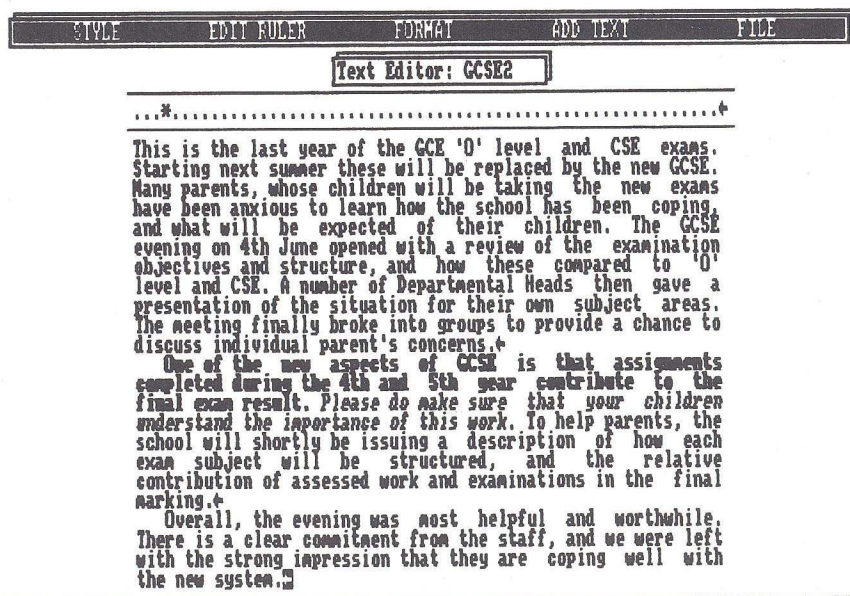


Figure 7.11 The Desktop Publisher text editor screen

files (created under LocoScript for example), or from other windows. Because the column width of a window must be set in advance, if you find that you need to change it for some reason, creating a new window and then transferring the text is the easiest way to do this.

When a text window file has been opened, a ruler of the appropriate width appears on the screen. The following options are available:

Edit Ruler

The edit ruler allows you to add or remove tab stops. The cursor is moved left or right along the ruler at the top of the box and tab stops are toggled on and off using the [TAB] key.

Format

The options on this menu are:

- Right Justify
- Centre Justify
- Window Length Lock.

The first two are self explanatory and work in the same way as LocoScript. As the text window was formatted in the page editor, before using the text editor to add the text, the window length has already been determined. However, if you leave the text editor and save the file before the limit has been reached, then the actual length of the text will be recorded on the file. If you want the length of the window to remain as you had decided previously, (you may want to add more text later), then the Window Length Lock will keep it unchanged.

Style Menu

Although only one size of text can be used in any window, all the usual text styles, bold, italic, underline, super- and sub-script are available. These can all be selected using this menu. If you are familiar with LocoScript however, you will find it much quicker and easier to use the [+] and [-] keys than the menu. For example:

<i>Style</i>	<i>On</i>	<i>Off</i>
Bold	[+]B	[-]B
Italic	[+]I	[-]I

Underline	[+]U	[-]U
Super-script	[+]SP	[-]SP
Sub-script	[+]SB	[-]SB

File

This option allows you to load and save files to disk, and also to *abort*, that is return to the *page editor* without saving the current file.

Graphics Editor

The *graphics editor* is simple but extremely easy to use, and will produce results quickly. It has the usual functions of lines, boxes, ellipses, fill, etc. Lines can be drawn in a variety of thicknesses and 16 different solid and dot patterns.

Graphics Screen

The graphics screen (Figure 7.12), has a central area looking into the graphics window currently being worked on. A small box diagram at the top right hand corner of the screen shows the screen in relation to the window. The outer box shows the current graphics window, the inner box shows the part which can be seen on the screen. If the window is small, then all of it will be seen at once on the screen. If the window is larger than can be seen at once, then it is possible to scroll the small box around the window by moving the cursor to the appropriate arrow at the top left hand corner of the screen. When the inner box is in the required place, the screen can be refreshed to see that part of the graphics window.

Down the left hand side of the graphics screen are 16 fill patterns. The bottom box shows the currently selected one. This can be changed at any time by moving the arrow cursor to the required pattern and pressing the *select* key. Similarly, down the right hand side of the screen are 16 brush patterns which can be selected in the same way.

Tools

The graphics tools available are:

- Point* – draws single points.
- Line* – draws a single line.
- Lines* – draws contiguous lines.

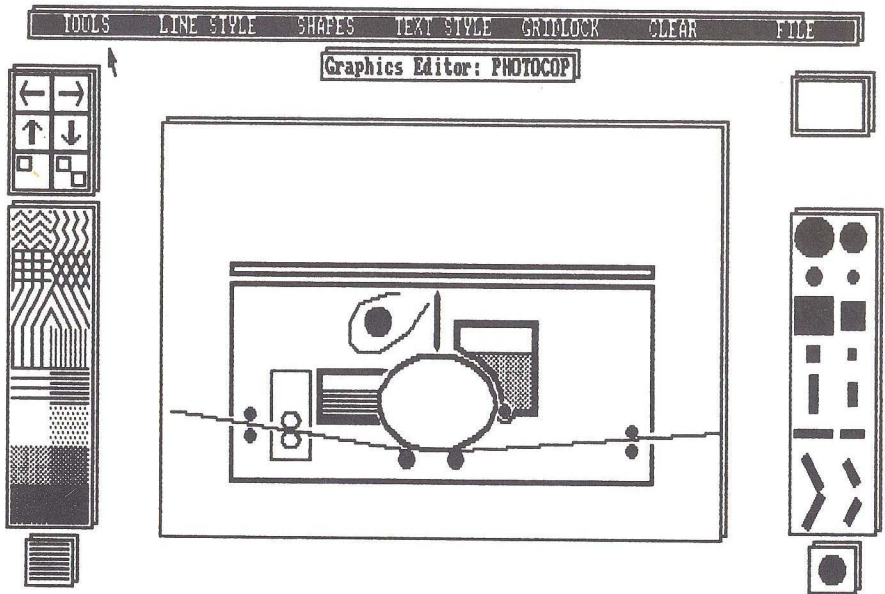


Figure 7.12 The Desktop Publisher graphics editor screen

- | | |
|-----------------|--|
| <i>Rays</i> | – draws lines radiating from a single point. |
| <i>Box</i> | – draws squares and rectangles. |
| <i>Triangle</i> | – draws triangles. |
| <i>Ellipse</i> | – plots a rectangle which is subsequently replaced by a circle or ellipse. |
| <i>Freehand</i> | – draws a line following the movement of the cursor. |
| <i>Brush</i> | – paints an area using the current brush shape and fill pattern. |
| <i>Magnify</i> | – similar to <i>zoom</i> in other packages, here the original can be seen at the same time as the magnified image. |
| <i>Fill</i> | – fills enclosed areas with the currently selected fill pattern. |
| <i>Copy</i> | – copies any area of the window to another. |
| <i>Move</i> | – the same as copy but erases the area copied. |

Text – writes the text font currently selected by the *Text Styles* menu to the window.

Invert – will invert the colour of a chosen area, or the whole window.

Cut – will copy a selected area of the window to a disk file so that it can be used in a different window.

Paste – used to add an area from a disk file (created using *cut*) to the current window.

Line Style

Colour – This allows you to choose to draw lines in either foreground or background colour (the latter for drawing over areas already filled with foreground colour).

Thickness – Lines can be drawn in three thicknesses.

Style – There is a solid line, and 15 different line and dot combinations to choose between.

Shapes

When you draw shapes (boxes, triangles or ellipses) you can choose between outline, solid and outline *and* solid. Outline draws the shape but leaves anything on the screen that falls within the shape. Solid (in either background or foreground colour) will obliterate anything underneath (solid in background colour is useful for erasing). Outline and solid will draw a box and obliterate anything that falls within it.

Text Style

Used to select and edit the graphics text fonts. The fonts need not contain letters, you could create a font of icons if you wish.

Read Font – Loads a selected font from the disk file.

Right, Down, Left, Up – Selects the orientation in which the text is written to the graphic.

Inverse – Text can be in normal colour, or reversed (background colour letters in a foreground colour box).

Gridlock

This is an extremely useful aid to producing regular diagrams and charts. Gridlock allows you to lock the cursor to one of six grids, which makes it very easy to draw lines that are evenly spaced and straight.

Clear

Used to clear the current window, or just that part that can be seen on the screen.

File

All the file options to load and save windows.

- | | |
|--------------------------|--|
| <i>Save and Exit</i> | – Saves the window under the current filename and returns to the page editor. |
| <i>Save and Continue</i> | – Saves the window under the current filename for safety and returns to the graphics editor to carry on editing. |
| <i>Save as</i> | – Saves the window under a different filename. |
| <i>Abort</i> | – Leaves the graphics editor and returns to the page editor without saving the current window to disk. |
| <i>Load</i> | – Loads an existing window file from the disk into the graphics editor. |

Adding Text

Headline fonts are treated as graphics, and can be set out in almost any size, although enlargement to over eight pixels high produces stepped diagonal edges. When you have selected text, one of the more difficult operations in The Desktop Publisher is to adjust the size to fit the space available. Text size is selected by opening a box the size of one character. The height and width are both variable. The spaces between each character are rather large, and there is no proportional spacing. Making a headline fit a given space is rather a matter of trial and error, several attempts are usually necessary before the correct size is achieved. As lines of text are typed, the [←DEL] key can be used, but once the [ENTER] key has been pressed to move the cursor down to the next line, the text has been saved to the screen as pixel graphics, and can only be edited by erasing.

Assembling the Page

Having created the page and windows in the *Page Editor*, and used the text and graphics editors to fill in the words and pictures, the page editor is used again to fit it all together and print it out.

The outline of the windows can be seen on the page outline at the right hand side of the screen. By moving the arrow cursor to the *preview* option, the page is re-drawn on the left hand side of the screen. The text windows are still seen as filled with horizontal bars, but the contents of the graphics windows are shown, albeit in reduced detail. Now the arrangement of the page can be adjusted by moving the windows around, even on top of each other. A text window could be placed over a blank area in the middle of a graphics window for example, so that the text becomes part of the graphic. Any window that is on the data disk can be used on the page as often as you wish. Using the modes menu and the add/remove window options, text windows can be introduced and removed. At any stage, *preview* can be selected to see the effect of any change.

Printing out

Once the results seem satisfactory, the page can be printed out, either in draft or high quality, using the PCW printer, or through an Epson compatible Centronics interface. The size of the area available for a page is very nearly full A4 size. This can cause a minor problem if your text and graphics use the space fully and you want to print out onto single sheets of paper. The Amstrad printer needs some space at the top of the page so that the paper can tuck safely behind the bail bar, resulting in some of a full A4 page falling off the bottom of the paper. The easiest solution is to print onto foolscap paper which is longer than A4. Either trim the pages down before copying, or at least make sure that they are correctly positioned in the copier before running off lots of copies.

THE DESKTOP PUBLISHER – SUMMARY

Of all the packages available for actual test and described in this chapter, this one stands out for simplicity and speed of use. It is also by far the cheapest. Its facilities are limited compared to FSE+ as it cannot easily run text over several pages, or even between different areas, so it is of most use producing single pages; but if you are happy with the

standard PCW typeface (which is very legible) then this package is ideal for simple leaflets, instruction sheets and class handouts.

SUMMARY OF DTP PACKAGES FOR THE AMSTRAD PCW 8256/8512

	Newsdesk International	Stop Press‡	Fleet Street Editor Plus	Desktop Publisher
Graphics – facilities ease of use snip art	* (* with mouse) ** *	** (* with mouse) *** ?	* (* with mouse) ** **	* (* with mouse) *** *
Text – facilities ease of use fonts	* ** *	** ** *	*** ** **	** *** **
Layout – facilities ease of use speed	* * *	** ** ***	*** ** **	** *** ***
Instructions	*	?	***	**
Approximate cost (software only)	£50	£50	£70	£30
Comments	Good graphics	Easy to use. On-screen speed.	Page dummies. Very comprehensive facilities.	Text styles limited. Quick effective page previewing. Inexpensive. Can use any mouse.

‡Final version of *Stop Press* not available at time of writing. Comments based on demonstration prototype only.

8 Reproducing the Results

REPRODUCING THE RESULTS

Using the printout directly from the computer printer is not likely to be practical or economical for more than a few copies. The printer will be slow, and the cost in ribbon and wear and tear will be more expensive than almost any other method of printing. Most of the methods that are available are based on some form of photography, ie photocopying and photo-lithography, but there may be two other direct methods which are available, stencil and spirit duplicating. They are cheap, and may be suitable for some purposes. All printing methods need paper.

PAPER SIZES

Since the early 1970s the paper industry has concentrated on a few standard sizes of paper for general use. These are known as the OSI A sizes. The sizes are known as A0, A1, A2 . . . down to about A5. They are based on the area of the paper used: A0 is one square metre, A1 is half a square metre, etc. The other characteristic is the ratio of the lengths of the sides. This is always 1.4142, which also happens to be the square root of 2. The advantage of this is that the shorter side of any particular A size is exactly the same length as the longer side of the next size down. So A0 folded in half is the same as A1, A1 folded in half is the same as A2 and so on.

The sizes that are most likely to be of interest to readers are A3, A4 and A5 (Figure 8.1). A4 is the size most used for office typing paper, photocopies, scribbling pads and magazines. The size is 11.69×8.27 inches or 297×210 mm. A3 is 16.54×11.69 inches or 420×297 mm. and A5 is 8.27×5.83 inches or 210×148 mm. A4 is $\frac{1}{16}$ th of a square metre, A3 is $\frac{1}{8}$ th, and A5 is $\frac{1}{32}$ nd.

There are other sizes in less common use, and only usually available from specialised paper merchants. These are sizes for printers who will need to trim paper after printing. They are the RA sizes which are slightly bigger than A sizes to allow for trimming, and the SRA sizes which are slightly larger again to allow for printing over the edge of the finally trimmed pages (known as bleeding off). The B sizes come between the A sizes, but have the same ratios between the sides. B0 is 55.57×39.37 inches or 1414×1000 mm.

<i>inches</i>	<i>A sizes</i>	<i>mm</i>
16.54×11.69	A3	420×297
11.69×8.27	A4	297×210
8.27×5.83	A5	210×148

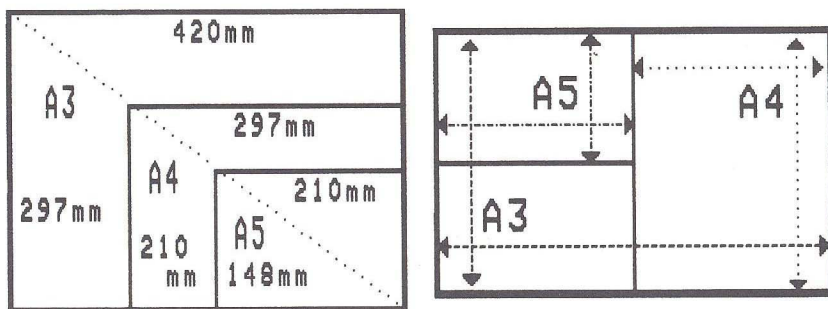


Figure 8.1 Paper sizes

PAPER WEIGHTS

Paper comes in various thicknesses, and is specified in grammes per square metre (gsm or g/m^2). A good quality bond paper is about 90 or 100 gsm, ordinary computer printout paper is about 65 gsm. Card is also now specified in gsm, for instance, the old *3 sheet card* (about the thickness of a postcard) is 227 gsm.

PHOTOCOPYING

The most convenient method of duplicating printout for most people is electrostatic photocopying. Most offices have machines, and photocopying services are available in many shops and libraries. For very small runs, photocopying will certainly be the cheapest method of duplication if you do not have a machine of your own.

Principles of Photocopying

Photocopying works on the principle of attraction by electrostatic charge. An image of the original document is focused onto a drum covered with a material which can hold an electrostatic charge. The parts of the image that are light discharge the surface. Those parts of the surface where the image is dark retain the charge. The parts of the surface where the charge remains attract and pick up the toner, which is a very fine powder. This is transferred to a sheet of plain paper, where it is fixed by heating, melting the toner which fuses with the paper surface. The process is quick, uses plain paper and requires no plate, negative or master. Each copy requires the same process, so making just one copy has no cost disadvantage over making a lot of copies, but if you want a long print run, other processes such as offset litho could be cheaper.

PHOTOCOPYING MACHINES

There are many different photocopying machines on the market, ranging from table-top models designed for the small office, to large ones designed to cope with huge throughput, probably incorporating a sorting device to collate multi-page documents.

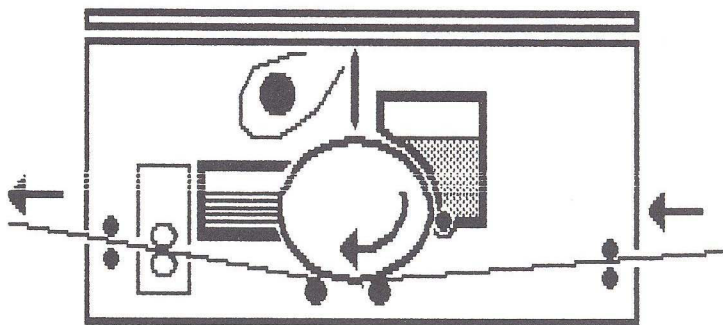


Figure 8.2 Photocopier Interior

Methods of Scanning

The photocopier needs to transfer the image on the original to the drum, and different machines do this in different ways. Large machines use a lens and an electronic flash, transferring all the image at once. Others use a rotating mirror to scan the original. Some small machines move the whole original over a slit of light, (Figure 8.2) passing the copy paper underneath at the same time.

Reduction and Enlargement

Many machines which use a lens are able to reduce the size of the copy, usually to the next lower A size. Some machines, (usually only found at copying services) can also enlarge. Reduction usually improves the apparent sharpness of the copy, enlarging is sometimes a disappointment. It is important to remember that no amount of enlargement will put detail into a copy that did not exist on the original. If the photocopier that you normally use will not reduce or enlarge, and a copying service is too expensive for a whole run, it can be a good idea to go to the copy service for one enlargement or reduction, and then copy that at normal size in the numbers you require using the equipment available to you.

Paper sizes accepted

All machines accept A4 paper as this is the normal office document size; some machines will also accept A3. If you want A5 copies, put two sheets together onto A4 to halve the number of sheets of paper and thus the cost.

COLOUR PHOTOCOPIERS

Most photocopiers make black copies, that is the toner used is black. However, toner is available in several different colours and some machines are able to copy in colour.

Spot colour machines

At least one small desktop copier, the *Canon FC3*, is designed to produce copies in several colours. The drum and toner are held in an easily changeable cartridge, and these are available in different colours. The copier only *copies* in one colour at a time, but the copy can be printed out in red, green, blue or brown as well as black. However, the sheet onto which the copy is made can be passed through the copier as often as required, and by using *separated artwork* (page 81), multicoloured results can be achieved. A large number of copies made in this way would be rather labour intensive, but for small runs it could be a useful technique.

Full colour machines

Large photocopying services can produce full colour copies from coloured originals, including colour photographs, and sometimes colour

slides. These copies are cheaper than photographic prints, but are of lower quality. The copies can also be made onto a film base for use as overhead projection transparencies.

PHOTOCOPYING SERVICES

Most high streets will have some outlet which offers a photocopying service. Many companies with a photocopy machine try to increase its throughput in this way to help contribute to the cost of their own photocopying needs. Most libraries have copiers, but the copy charge is usually high, and there is often a tedious form to fill in to cover the authorities for copyright clearance. Unfortunately, not all these services understand their machines and the needs of clients enough to produce the best quality results, so see a sample of the output before you order a lot of copies, and if you are not satisfied, look elsewhere. However, the best results are likely to come from specialist companies, who probably also run a printing service. Copying charges vary, so this is another point to check.

STENCIL DUPLICATORS

Stencil duplicators were very popular before photocopying machines were as widespread as they are now. They are still manufactured and there are a large number of machines around in companies, schools, colleges and community centres, so you may be able to use one. The two best known makes are Gestetner and Roneo.

The stencils are made of paper covered with a waxy coating which is impervious to ink. The image to be reproduced is cut into this coating, forming a stencil which allows ink through onto the paper fed through the duplicating machine. The stencils are held on the machine by pins which pass through the cardboard head at the top of the stencil. Different makers of machines use different pin patterns in the hope that users will remain faithful to their stencils, but universal stencils are available from third party suppliers.

Two methods can be used for cutting stencils. The first is by direct cutting. The standard method of doing this is to use a typewriter, or to write by hand on a stencil with a stylus. Most typewriters have a special *stencil* setting, usually between black and red, which keeps the ribbon out of the way of the letters. The same result can be achieved with the standard PCW printer by removing the ribbon. For the best results, you will need to buy special stencil sheets suitable for a PCW printer;

Gestetner call theirs *memory* stencils. The kind made for normal typewriters are too thick for a PCW printer.

The other method of cutting stencils is to use a stencil scanner. These devices were very expensive to buy, but are still to be found giving good service in many educational establishments, etc. The scanner works rather like a photocopier in that it accepts finished artwork, but in this case the artwork has to be flexible enough to go around a drum. The drum holds the original and a fresh stencil sheet side by side. The drum rotates, and as it does so, a photocell scans the original. Where it detects a dark area, a cutting blade digs into the stencil scraping a hole in the surface at the corresponding spot. The scanner can reproduce quite fine detail; ordinary text comes out well by stencil duplicating standards. The advantage of this system is that artwork can be pasted up to include text and illustrations (although not successfully with photographs).

Stencil duplicators need special paper which is more than usually absorbent, making the image spread slightly so that the results are not quite as sharp as photocopies.

SPIRIT DUPLICATORS

Also known as *Bandas*, these are the machines which make school staff rooms smell of methylated spirits, and give rise to unwarranted suspicions about the teachers' drinking habits. The output can easily be recognised, as they are usually bright purple (or rather less bright if the master is starting to wear out), and are very useful for producing handouts, information sheets, etc, where the visual quality of the result is not critical. They are extremely cheap to run, but produce copies of only fair quality and a limited number from one master. They also tend to fade if left in sunlight for prolonged periods. But this need not be a disadvantage for many purposes, and with a word processor, it is an easy matter to make a new master.

Masters are written or drawn or typed onto a special paper (although almost *any* sort of coated paper seems to do in an emergency). While this is being done, a dye sheet (which looks rather like thick carbon paper) is placed behind the master paper, *coated side up*, so that where pressure is applied the dye transfers to the back of the master sheet (Figure 8.3). There, it forms a laterally reversed image of the typed copy. In the duplicating machine, each sheet of paper to be printed is damped with a methyl-alcohol based solvent. As it passes in contact

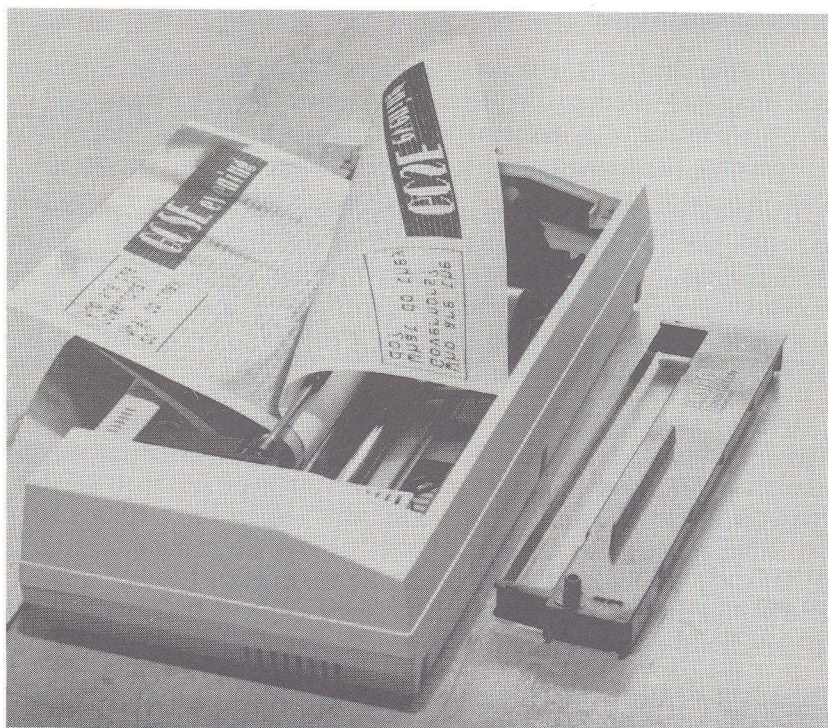


Figure 8.3 Making a spirit duplicator master

with the master, a small amount of the dye is transferred over to it, forming an image. Because dye is constantly being removed from the master, the ultimate number of copies that can be made from one master is inevitably limited, but with a word processor, making a new master is easy.

Spirit duplicator masters can be made very successfully on the Amstrad dot matrix printer if the ribbon is removed and the pressure setting is set high. This is done by pushing the blue head adjustment lever. (See Figure 4.8 page 71). The highest pressure is when the lever is pushed *towards* the roller, the lightest when it is set *away* from the platen. Of course, if there is no ribbon in the printer, you can only see what is printed on the master by looking at the back. If you cannot read mirror writing, then print out the master paper once with the ribbon, but without the dye sheet, then once again without the ribbon to transfer the dye.

Multicoloured copies

Apart from cheapness, a great advantage of spirit duplication is the fact that they can produce multicoloured copies from one master. Dye sheets are available in different colours, although the usual purple ones will produce the greatest number of copies before the dye runs out.

The usual technique for making multicoloured masters is to put one of the coloured dye sheets behind the master and then type or draw only the information to be reproduced in that colour. Change the dye sheet for another colour, draw that and so on. If you are to have your text in one colour and illustrations in others, it is best to do the typing first and draw in the diagrams afterwards.

Spirit duplication masters with diagrams from computer graphics packages can be very successful. For multicoloured masters, create the whole content using the package, make two copies and then partially erase the images, leaving on each those parts required to be printed in a particular colour. Pass the master sheet through the printer as often as necessary, once for each colour, changing the dye sheet when required. You will need to line up the master sheet carefully in the printer at the start of each pass; a printer loading guide is useful here.

To create areas of coloured tint, place the master and a suitable dye sheet over a heavily textured surface (such as sandpaper) and rub down with a spoon handle (rather like brass rubbing). Tinted boxes around some text can look effective.

WORK AND TURN

If you want to produce an A5 leaflet, printed on both sides, the least wasteful way to do it is *work and turn*. Produce the artwork for both sides of the final leaflet side by side on a single A4 master. Duplicate *half* the number finally required, then place the already printed copies back into the feed tray of the duplicating machine (or copier) so that the image is now printed on the back. Cut the results in half to A5. Make sure that the fronts and backs have different halves of the images on them.

PRINTING PROCESSES

For longer runs and better quality reproduction you will probably need to make use of a printer or one of the instant print services that have

appeared in many high streets. The printing method that they will use is called lithography.

LITHOGRAPHY

Lithography, photo-lithography, offset lithography, litho printing, or just *litho* are all different names for a very versatile printing method which is used to produce the majority of printed materials today. The principle used is that water and grease do not mix. A printing plate is made, the image on which allows a greasy ink to stick to it. The rest of the plate is damped with water which repels any more of the greasy ink. When the plate is inked the fresh ink can only stick to that part of the plate with the greasy image.

USING PRINTING SERVICES

Lithography is a specialised business, and so you are likely to need to go to a commercial service to get your work done. The range of companies offering printing services is very large, and no one printer will be best for all types of work. You will need to look around and get estimates for the work that you want done. In particular, seek the advice of the printer about how he would like the work prepared before it is presented to him; this could save having to redo some things, which causes delay and increased cost.

Printers will be able to offer other services as well as printing, for example they will be able to carry out *finishing* such as collating, trimming, folding and binding.

INSTANT PRINTING SERVICES

Many instant print services have sprung up to cater for businesses needing routine printing work done for them. They will offer a range of standardised services from photocopying to litho printing and some finishing. The quality of their work is not likely to compare well with the best commercial printers, nor will they be very cheap for long runs, but for small amounts of work they are quick and convenient.

The printing machines instant print services use may not handle paper larger than A4. Apart from the size constraint, this usually means that the inking capacity of the machine will be limited, so artwork with large areas of solid colour will not reproduce successfully. Instant print services are also likely to use plastic or paper (electrostatic) plates. If

your paste-up has a lot of edges, these might show up, and also halftones will need to be fairly coarse (65 dots per inch) to reproduce.

Instant printing services have fairly detailed price lists, enabling you to compare costs and choose the most economical for the work you require. The quality of reproduction may vary, so it is a good idea to also look at samples of work before deciding.

FINISHING

Whether you duplicate the results yourself, or have it done by a commercial service, if you are producing a multipage document, it will need *finishing*. These are all the processes that take the printed sheets of paper and convert them into the brochure, booklet or whatever. All these tasks are most conveniently (and most neatly) done on the proper equipment, and the cost is likely to be quite high, particularly for small runs, but printers will sometimes accept finishing work even if they did not do the printing.

Trimming

If you have done the printing or duplicating yourself, the chances are that you used the correct size of paper for the final result. If you need to trim however, the method you use will depend on the number to be done. If you want all the copies the same size then there really is no substitute for a proper printer's guillotine which will cut all the copies at the same time. An old fashioned guillotine will only take a few sheets and if you try to do too many at once it is likely to pull them out of square or tear instead of cutting.

Binding

There are many methods of binding, but only a few lend themselves to do-it-yourself.

Stapling

Usually referred to as *stitching*. Ordinary domestic/office staplers are very limited in what they can do. The first problem is the number of sheets that the staples will go through (although this has as much to do with the staples you buy as the stapler), and the short reach of the arm.

For booklets with a small number of pages, *side stitching* is the

simplest method of binding. The resulting booklet will not stay open flat, but it can be done with an ordinary stapling machine, and can be made to look neater by sliding a plastic strip, available from commercial stationers, over the stapled edge, or covering the edge with an opaque adhesive tape.

Booklets made from paper folded in half can be stapled through the middle, called *saddle stitching*, but this is a job for a printer as there are special staplers with a long arm which position the staples accurately and in some cases, fold at the same time.

Combs

Although rather expensive for anything other than short runs, plastic comb binding is very useful (Figure 8.4). Flexible plastic combs are available in a variety of sizes and colours. A special punch is used to make a row of holes in the edge of the booklet, and a jig used to stretch the comb so that the pages can be fed on. Once the pages are in place the comb springs back into shape holding the pages. The booklets look neat and open flat. The system is reasonably flexible and can accommodate paper and card pages, even in the same booklet if required.

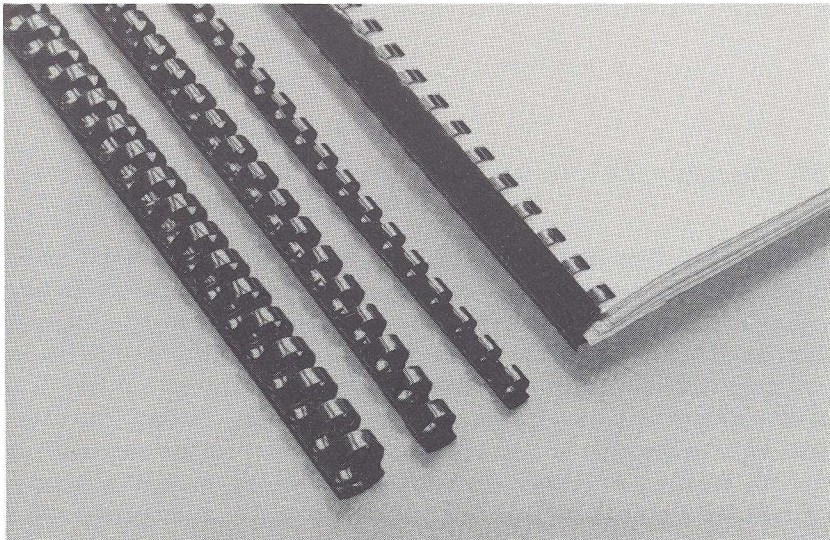


Figure 8.4 Comb binding

9 Visual Aids

Producing effective visual aids can be a time consuming, or (if you use external services) an expensive activity. If you have a graphics package for your Amstrad, then an excellent means is available for producing artwork for either overhead projection transparencies or diagrammatic 35mm slides.

OVERHEAD PROJECTION TRANSPARENCIES

The overhead projector (OHP) is found in most schools and training departments. It can be a very effective visual aid for presentations because:

- visuals can be prepared in advance;
- room lighting remains constant;
- you do not need to turn away from the class when changing the visual, or pointing something out.

The OHP (Figure 9.1) consists of a lightbox base with a lens on an arm above it. The visual is prepared on an overhead projection transparency or foil. These foils are sheets of transparent acetate, usually A4 in size. The illuminated 'stage' of OHPs is usually square, so if you use oblong foils, you can arrange the information on them either horizontally (landscape) or vertically (portrait). Sometimes foils are mounted in card frames, which are about 12" square. The foil material comes in different thicknesses and the more robust do not really need frames, which are usually too large to fit into briefcases or filing cabinets.

The projector usually stands on the table in front of the group, with

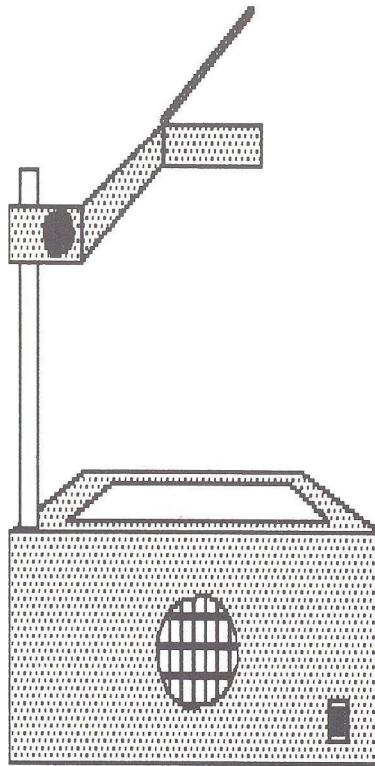


Fig 9.1 An overhead projector

the lens projecting over the speaker's shoulder. The speaker places the foils on the top of the illuminated stage, with the text or illustration appearing the correct way around. The image is reflected through angled mirrors and is projected onto the screen the correct way. There is no need to turn to point at the screen, as pointing to the foil with a pencil or thin pointer will be seen and you can retain eye contact with the group.

TYPE SIZES FOR LEGIBILITY

The foils can contain text, illustrations, or both. It is important to make sure that the visual can be seen easily by everyone in the group. The most effective visual aids are those that do not try to hold too much information on one foil. It is much better to have a series of simpler illustrations and use a different one from time to time. Not only does

this help the audience to follow more easily what you are saying, but in addition, it helps to provide some variety to the presentation. In an ideal classroom, the overhead projector will be arranged so that the furthest member of the group will be no more than five widths away from the screen; that is, if the projected image is five feet wide, then the furthest member of the audience will be no more than 25 feet away. Of course, ideals are not always achieved and so you must be sure that your visuals are clear enough for all to be able to see them. In this context, ordinary word processor typefaces will not be big enough. You can check this for yourself by taking a typed page of text and viewing it from a distance of five times an A4 height (about five feet). This should give you the same impression as someone sitting in the back of the class.

The same considerations apply with illustrations. Complex and very detailed diagrams simply are not very successful on the OHP. Very fine lines suffer the same problems as small lettering. Once again, check the clarity by viewing the illustration A4 size from about five feet away. It is best to use simple, bold images wherever possible.

LAYOUT

The illuminated aperture on the OHP is usually square, but also normally slightly smaller than the longest side of an A4 sheet, so make sure that your illustrations of text are not too big to fit all at once on the screen.

Here are some guidelines for foils containing just text; eight lines of text are enough for any one foil.

If n is the height of the letters, then:

- the distance from the top of the projected page to the top heading or first line should be not less than n ;
- if a heading is used, separate it from the next line of the text by $1.5n$;
- if a statement runs into more than one line of text, separate each line by $0.5n$;
- each complete statement should be separated by n ;
- the bottom line should not be less than n from the bottom of the projected image.

Do remember that the aperture in a card frame is slightly smaller than the actual foil, and many OHPs will not project the entire length of an A4 foil. Be careful not to place any diagram or text at the extreme edges of a foil, or it may not get onto the screen. A 1" (2cm) margin all round would be safe.

MAKING THE FOIL

There are several ways of making foils from the artwork produced by the Amstrad: the two most frequently used are electrostatic photocopiers, and infra red copiers.

Photocopiers

These often accept special acetate sheets to make black and white foils in exactly the same way as they produce photocopies. If you are going to buy or rent a photocopier and are likely to want to make foils, it is worth checking in advance that the model that you are thinking of getting will accept acetate sheets.

Some photocopiers are now available that take cartridges of toner in different colours, but they do not produce foils that automatically project in different colours. They will print coloured toner onto the foils, but the toners are opaque, and every colour will normally project black! To use these for projection, you also need a special heat machine that turns the toner transparent. The colours produced are not as vivid as those produced by infra red copiers (*qv*), but the system is more flexible (allowing several colours on one sheet from separated artwork), and is cheaper (once you have bought the machines).

If a black image filled with areas of colour is what you want, then you can make photocopied foils and colour them in with coloured pens. This only works well for spots of colour as the results are too uneven for anything but very small areas. For larger areas of colour, it is better to use coloured adhesive film.

Coloured Adhesive Film

This is an excellent way of adding colour to photocopied foils. It is applied in much the same way as the mechanical tints described in Chapter 5. The OHP foil is produced with outlines describing the areas to be tinted. The coloured film is cut roughly to size and lightly applied over the foil. It is then trimmed exactly using a sharp pointed scalpel or

craft knife (taking care not to cut through the foil) and the excess removed. The final coloured area is then more firmly pressed into place.

The lighter colours of film, such as yellow, are very successful for highlighting parts of the transparency. The darker colours make it difficult to read any text underneath.

Infra Red Copiers

These machines copy using the heat principle. The artwork is fed into a slot together with a special foil material, where they pass together around a roller and are instantly fed out again. When the two are separated, the foil has on it a coloured image of the artwork. Foil materials are available in a variety of types which give different tinted results – a coloured image on a reasonably clear background, a clear image on a coloured background, a brightly coloured image on a coloured background or black letters on a coloured background. Only one colour is produced on any foil material, so if you want, say, a red diagram on the same foil as blue text, then you will need to make a red foil with the diagram, a blue foil with the text and lay one over the other, preferably sticking them on the same frame so that they stay in the right place.

The image on the artwork needs to absorb heat because of the principle on which the machine works. Ordinary computer printer ribbon ink does not do this efficiently enough so you will either need to use a carbon ribbon (see page 74), or make a photocopy so that the image is composed of carbon. The printout or photocopy can be used many times to produce multiple copies. As a result of the high level of heat involved, some photocopies produced by some copiers come out of the machine bonded to some makes of foil! An example includes photocopies from Océ machines and 3M foil; but there are some foil materials such as ITM which have a transfer sheet (it looks like thin tissue paper) which is placed between the photocopy and the foil before passing them through the copier, completely eliminating this problem.

35mm SLIDES

For some presentations 35mm slides are more suitable. Outside of education and commerce, 35mm projectors are certainly in more common use, and you may wish to include ordinary photographic colour slides in your presentation. If there is to be a large number of

illustrations, then 35mm slides are more compact for transportation. Up to 80 can be fitted into a projector magazine, and changed by remote control.

35mm slides can be made in black and white or colour from the output of the Amstrad word processor. In some ways, 35mm slides are easier to make as the materials are easy to find, and trade processing facilities can be used.

Camera

If you are going to make 35mm slides of the output from your Amstrad word processor then you are going to need to be able to photograph *flat copy*. Without doubt, the ideal camera for this sort of work is *single lens reflex*. These allow you to see through the viewfinder exactly the image that will reach the film. The actual model need not be very elaborate. Most have interchangeable lenses, although this is not necessary. A through the lens exposure meter is a great help, although the readings will need to be correctly interpreted (see p161). The lens will need to be able to focus fairly closely; if the standard lens will not focus close enough, the simplest and cheapest remedy is to buy a *close-up* lens. This fits over the front of the lens and allows you to come closer to the subject and remain in focus.

For success, two things are important:

- the camera must be perpendicular to the artwork; and
- the illumination must be even.

Camera Support

You will need to support the camera in some way so that you can be sure that it is straight, and to make sure that it doesn't shake during the exposure. To do this you can use an ordinary tripod. Fix your artwork to a wall (read the section on lighting before choosing a place). Position the camera on its tripod so that it is level with the centre of the artwork and square on to it. Also make sure that the artwork is straight in the viewfinder. For some single lens reflex cameras it is possible to buy a replacement viewfinder screen with a grid specially made for lining up and they are a great help.

A more convenient method of copying artwork, particularly if it is A4 size or smaller, is a vertical copy stand (Figure 9.2). These can be

bought, made or adapted from parts of a photographic enlarger. They allow the camera to be conveniently raised or lowered to correctly frame artwork of different sizes.

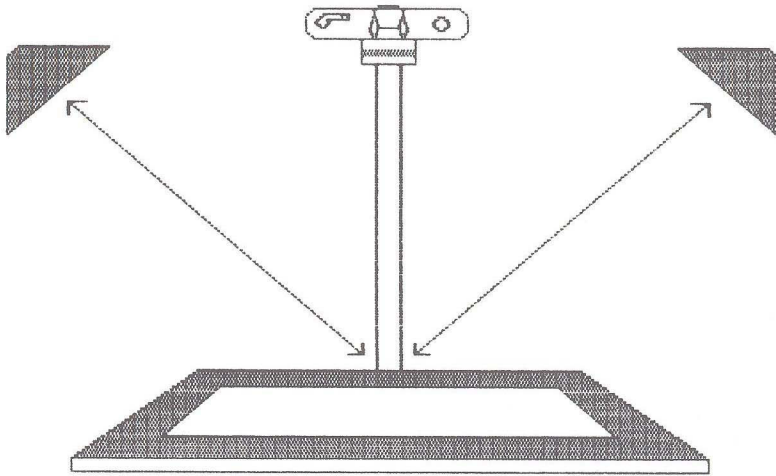


Figure 9.2 Vertical copy stand

Lighting

For lighting flat copy, several factors are important:

- even lighting;
- no shadows;
- correct colour light (for colour films).

If you are using artificial lighting, then remember that the brightness of the light falling on the subject will depend on the distance from the light source (Figure 9.3). The further away the light source from the subject, the dimmer the light. Light is subject to the inverse square law which makes the brightness fall off, not in proportion to the distance, but in proportion to the *square* of the distance. This means that if the light is not directly in front of the copy, then the brightness of the illumination on different parts will be uneven. To avoid this problem, it is usual to use two lights, one on each side, and arranged so that they are both the same brightness and the same distance away. The best angle is for both lights to be at 45° on either side of the copy. A simple test for evenness of illumination is to rest a pencil, or something similar, against

the centre of the copy so that two shadows are formed, one from each light. It is easy to judge if the two shadows look equally strong (half closing the eyes makes it even easier). Adjust the position of one of the lights towards or away from the copy until the shadows look the same.

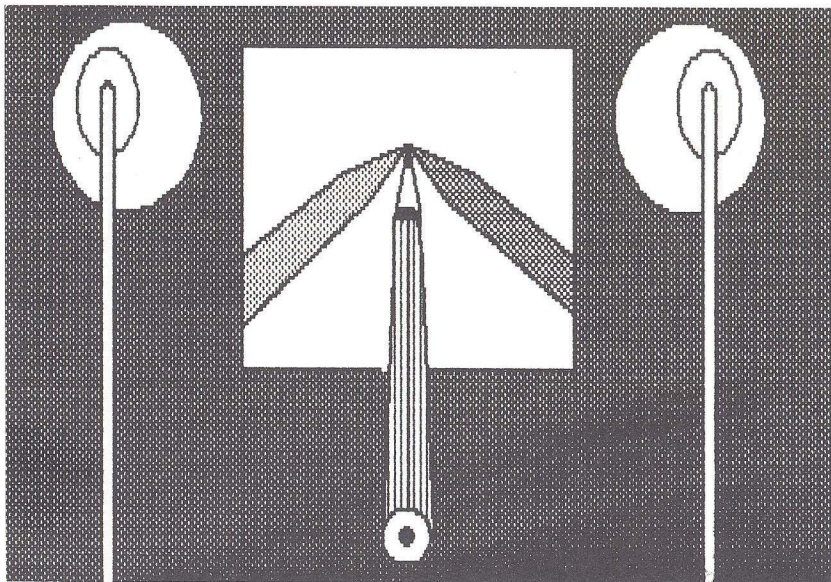


Figure 9.3 Balancing light on copy

If you are using natural light, then the sun is far enough away for the inverse square law not to matter, but be sure that there are no shadows, and that the angle of the sun is not so low on the artwork as to show up edges, creases or the texture of the paper.

If you are using colour film, then you will have to make sure that the lighting matches the colour film you are using, or *vice versa*, particularly for colour slides. Ordinary colour film is colour balanced for daylight (or electronic flash). If you use daylight film with electric filament lamps, even photographic ones, then the results will be very orange. To correct this you should use a light blue filter type 80B. This must be done at the time of shooting. On the other hand you could use film balanced for tungsten light (also known as artificial light, or type A film).

If you have artificial light film and want to use it in daylight then again you will need to use a correction filter or the results will look much too blue. In this case the filter is orange, type 85.

Exposure

The exposure that you give for colour slides is always critical, and with pictures of flat artwork it is easy to get it wrong if you do not know what to do. Most single lens reflex cameras today have *through the lens metering* (TTL). These meters work by measuring the light entering the lens of the camera and which will fall on the film. However, the way that the exposure is calculated from this reading is to assume that the subject that is being measured is *average*. In the case of flat copy it is not. An average subject reflects just 18% of the light that falls onto it. An accurate photograph of an average subject must also reflect the same amount of light. Exposure meters are therefore calibrated so that for a given amount of light coming through the lens, a picture will be produced that on average does reflect (or in the case of a slide, transmit) 18% of the light that falls on it. However, a piece of paper that reflects only 18% of the light falling on it is quite a dark shade of grey, but the flat copy being photographed is probably white. If a simple exposure reading is taken, the result will come out dark grey.

There are two solutions. One is to give the exposure meter an average subject to measure. An 18% reflecting grey card is available from Kodak (Kodak Neutral Test Card, Publication No R-27, catalogue No 152 7795). This can be used to place in front of the camera when taking the exposure reading. This works very well, but one of these special cards will have to be bought.

An equally reliable, but slightly less straightforward method is to take the light reading from a clean sheet of white paper (or something similar) and then give *five times* as much exposure as indicated. That means using a shutter speed five times as long (although keep to less than $\frac{1}{10}$ th of a second if possible), or else open up the aperture by $2\frac{1}{2}$ stops. Alternatively, divide the film speed index by five before setting this on the exposure meter. For example, if you are using a film with a film speed index of 100 ISO/ASA, set the exposure meter to 20 ISO/ASA. Do not forget to reset this again before using the camera to photograph normal subjects.

COLOUR SLIDES FROM PAPER ARTWORK

As with overhead projection transparencies, a major consideration with the design of visual aids is to make sure that the audience can actually see what is on the slides. An advantage of 35mm slides is that if you can

use a camera with a close focusing lens, it is possible to use a small original, and so be able to use ordinary printout for text. If you want to make text slides, make sure that you type the copy for the slide in an area of the paper about $3\frac{3}{4}$ " wide \times $2\frac{1}{4}$ " high (90mm \times 56mm), that is about 36 characters wide in 10 pitch, and 14 lines high in line pitch 6 (Figure 9.4).

35mm SLIDES

Type text for 35mm slides within an area of this size so that that they can be read from the back of the audience. The caption is:

- in 10 pitch characters
- 36 characters wide

The copy can be photographed using a 35mm single lens reflex camera. If your lens will not focus close enough, use some **extension rings**, or a **+3 close-up lens**.

Figure 9.4 Area for 35mm text slides

If you are using a graphics package, there is the problem that the resolution of the graphics will not be good enough in this small area, so perhaps the full page size is needed, but there is the danger here that the lines will be rather fine to be seen from the back of a room. Use as thick a line as possible, and perhaps enhance the artwork with colour.

COLOUR SLIDES FROM OHP FOILS

One excellent (but rather time-consuming) way of producing vivid colour slides from black and white artwork is a combination of some of the techniques described so far. Produce a black and white line graphic, make an overhead transparency foil, colour it using coloured transparent adhesive film (see page 156) and then photograph the result on 35mm colour film over a lightbox. You will need a lightbox with opal glass or perspex, evenly illuminated with daylight quality fluorescent tubes. Care must be taken when making the foil and when taking the final slide to retain as much detail as possible, but the colours of the final slide will be brighter than can be achieved with paper artwork.

The exposure for the slides is worked out by measuring the light from the lightbox and then increasing the exposure time by a factor of five, or opening the aperture $2\frac{1}{2}$ stops.

BLACK AND WHITE SLIDES

For black and white copies you can use a direct reversal film. Agfa make a black and white slide film called Dia Direct which can be sent away in a mailing bag and is returned processed and mounted in a few days. The film is designed for *continuous tone* work, that is, it will reproduce the range of greys seen in normal photographs. For line diagrams the resulting slides may seem to have rather low contrast.

INSTANT SLIDES

Polaroid make a range of films that can be exposed in an ordinary 35mm camera and then processed almost instantaneously in a special gadget. Once processed the films are dry and ready for mounting and projection. PolaChrome is a colour slide film, a high contrast version of which is available for flat artwork. PolaPan is a black and white slide film, with normal contrast, while PolaGraph is a high contrast version. Polalith is a high contrast negative film, producing a white image on a dense black background.

Slides with a white image on a blue background are very legible, and are used for many commercial and academic presentations. Until recently, these could only be produced using a time-consuming two stage process, involving litho negative film, and then re-copying onto colour film. Now white-on-blue slides can be produced simply and almost instantaneously using a new film from Polaroid, called *PolaBlue*. Designed for photographing line copy, this can be exposed in an ordinary 35mm camera and processed in the same way as the other Polaroid instant films. The processing time is a few minutes, and the slides can be mounted and projected immediately.

MOUNTING SLIDES

There is a special convention for marking 35mm slides so that they are easy to place correctly in a projector or slide magazine (Figure 9.5). Arrange the slide so that it is *right reading*, that is, so that you can see it as it is to appear on the screen. Then draw a large spot (a permanent OHP marker pen is ideal for this) in the bottom left hand corner of the

slide mount. If the slide is to appear in a special order in the presentation, mark the number as well. The projectionist need not know what the slide is supposed to look like, he simply has to place it in the projector with the spot in the top right hand corner facing towards the rear of the projector.

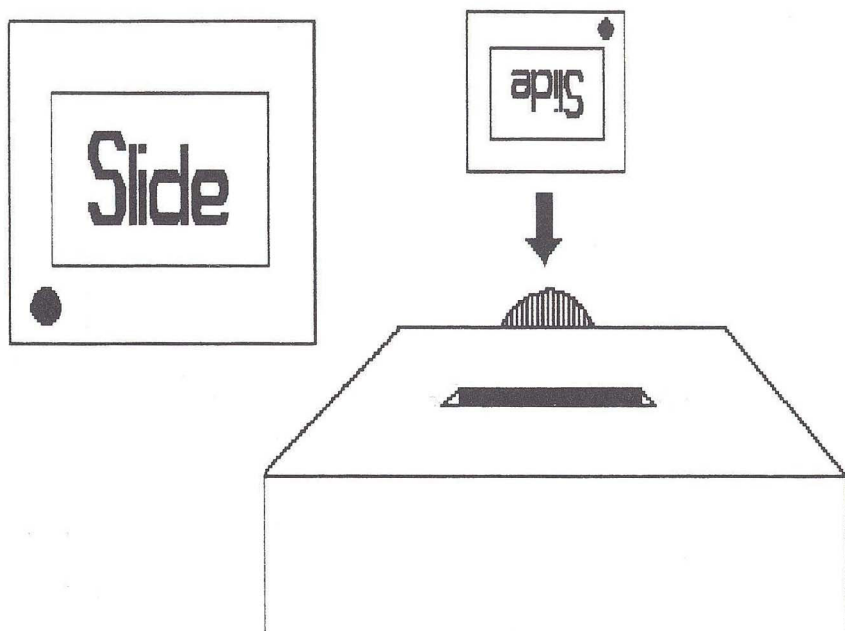


Figure 9.5 Placing of slide mount marking

10 Text Services

WHAT SERVICES ARE AVAILABLE TO HELP YOU?

For those who need to go beyond simple desktop publishing, there are professional services to get your text into print. Of course, you can still use the old-fashioned method of sending your manuscript off to a publisher and printer for the text to be edited and re-keyed (typed into a typesetting machine all over again), but that could be very wasteful of energy and resources (in short – money). Even if you intend to get your text typeset professionally, there is a lot you can do to reduce unnecessary steps. One way is to send your text on disk to a typesetter who can transfer the contents directly into his typesetting machine with the minimum of adaptation. You can even enter all the codes that he needs yourself.

There are editing services, translation services, and even transcription services to avoid entering the text into the keyboard yourself. And to save the time that all these services would take if the disks had to be sent by post, everything can be done by electronic mail.

TRANSCRIPTION SERVICES

The Amstrad PCW has brought word processing to hundreds of thousands of people, but amongst them are still those to whom the prospect of keying in a few thousand words from manuscript is very daunting. If you are one of them, why not find someone who will do it for you? There are many Amstrads around so there must be someone near you who can enter your text from manuscript or audio cassette. If you do not know of anyone, try advertising in your local newspaper or newsagent. On the other hand, if you have got an Amstrad and have time on your hands, why not offer a service yourself?

EDITORS

Most writing can benefit from being edited by someone other than the author. Any work that is being published professionally must be reviewed for spelling, grammar, consistency of layout and style. The author is seldom the best person for this task. His or her job is to create the material in the first place, the editor's rôle is attention to detail. If the editor can work directly from Amstrad disks, then, as well as dealing with grammatical and stylistic considerations, editors can enter layout instructions. This can prove to be a quicker and more direct process.

TYPESETTERS (WHO ACCEPT DISKS)

Almost all typesetting is now done electronically. Text is entered into a typesetting machine and the output produced photographically, either through an image on a high resolution cathode ray tube, or by projecting light through a disc or film carrying the typeface in negative. Traditionally, copy was re-keyed at the typesetters, but as most is now created and stored on magnetic media, it makes sense to transfer this directly. As well as saving on duplicated effort, it also eliminates a stage where errors may be introduced into the text.

Many typesetters will now accept text in an electronically stored form. Some can accept no fewer than 795 different computer/disk formats, including Amstrad PCW 3" disks. As well as the disk format, there is the file format to be considered. Most typesetters can work from ASCII files and possibly Word Star (and thus also New Word) files. If the text already contains the codes to control the typesetting machine, then the cost may be further reduced, and the service quicker. There is the danger though, that if the codes are wrong, the work will have to be repeated and paid for.

Entering codes in the text

Unfortunately there is no standard set of codes that is universally accepted by typesetters. On the other hand, most typesetting software can be set to search for any character string and replace it with the necessary codes. It is far better, of course, to liaise with the typesetter *before* you send your material, because a lot of misunderstanding can be avoided. Once a set of codes has been agreed on, these can be entered into the text, for instance by using LocoScript's *phrases* facility. Unfortunately *search and replace* in LocoScript will not recognise codes

such as *Bold* or *Italic*, and only one string can be searched for and replaced at one pass through the document. Protext has a much more powerful search and replace facility. Short programs can be written allowing many different strings to be recognised and replaced, requiring only one pass through the document.

USING DATA COMMUNICATIONS

Data communications has become very popular recently. This allows the transmission of information between computers. In the case of large computers needing to transfer great quantities of data, it is often over dedicated circuits; but the transmission of data can also be achieved efficiently and quite cheaply over the standard telephone system. So, if you are on the telephone, you can send and receive data to and from almost any other computer which is also near a telephone.

The computers do not have to be of the same type. This can bring certain benefits: data transmission is almost instantaneous, and need not be restricted by the distance of the link. If you need to send text to someone overseas, then data communications will certainly be the quickest way. Similarly, and somewhat ironically, if you have two completely different computers, side by side or a distance apart, then data communications over the telephone system may be the simplest way of exchanging files between them.

For any communications between your PCW and another computer, you will need an RS232/Centronics interface adaptor and some software. The interface is the same as used with alternative printers. If you want to communicate with another computer further afield using the telephone line, you will also need a *modem*. The subject of using the Amstrad PCW to transfer data and as a communications terminal is fully covered in Milan M, *Using the Amstrad Word Processor* (see Appendix 4).

Electronic mail

The most popular method of transferring text to distant computers over the telephone line is through *electronic mail*, or *email*. The concept is simple. Imagine a set of pigeon holes or mailboxes, each one designated to an individual user. Messages can be left for someone in their mailbox until they collect it. With an ordinary mailbox you have to go there physically in order to inspect your mail, and that is where the

convenience of the system starts to fall down. With electronic mail the messages are not left in pigeon holes, but in the memory store of a large computer. The messages are put there from individual computer terminals. Using standard communications services, the messages can be sent from anywhere that there is a telephone, and just as importantly, they can be collected from almost anywhere in the same way.

Mailbox users can access their mailbox at any time, from anywhere that there is a telephone and a terminal. The terminal could be an Amstrad, or it could be a portable battery operated micro, using an acoustic coupler and a public telephone. There are some types of people for whom the advantages of electronic mail are obvious, for example, those who frequently work away from base. They are almost impossible to get on the telephone, but electronic mail messages can be left for them in the knowledge that they will get them the next time they look in their mailbox, either when they get back or when they call in from where they happen to be.

There are also advantages for the recipients. When they receive messages they can either deal with them immediately if they wish, or when it is more convenient. The message does not disappear from the mailbox once it is read, only when it has been deliberately deleted.

Getting a mailbox

There are several electronic mail services available. The best known one in the UK is *Telecom Gold*. This is British Telecom's *Dialcom* electronic mail system. Telecom Gold has several mainframe computers to store their users' mail and different computers are known as different systems. Thus someone may have their mailbox on System 81, while another uses System 84. Users on one system can send messages to anyone on any other system. They can also send messages to people on Dialcom, an electronic mail service in the United States (now actually owned by British Telecom).

Telecom Gold's computers are situated around London, which means that users in that area can dial directly over the normal public telephone network. Users further away are better served with the packet switched data network (PSS). However they do not need a separate account with PSS as Telecom Gold have a public *network user identity* which subscribers to Gold can use. The PSS charges get added to the mailbox

bill of course, but for those with only a small requirement for data transmission it is more economical.

Subscription charges for Telecom Gold tend to be geared towards commercial users and indeed, companies with a requirement for more than one mailbox. There is another way of getting a mailbox on the same service, and that is to rent one through one of the mailbox retailers; that is, organisations who rent boxes in bulk, and then sublet them to individuals. *MicroLink* is run by Database Publications Ltd, the publishers of the magazines *Tel Link* (which is devoted to data communications) and *The Amstrad User*. There are other services for more specialised users which provide mailboxes on Telecom Gold. These include *Textnet* and a service dedicated to the legal profession.

Another electronic mail service available in the UK is *One-to-One*. This offers similar facilities to Telecom Gold and it is now possible to send messages between different email services in the UK.

Modem manufacturers and communications software suppliers sometimes offer free initial subscriptions to mailbox services when you buy their goods. These offers have included Telecom Gold, One-to-One and Micronet from time to time, so if you are going to buy a modem or software, look around to see what is on offer.

Many large companies operate their own electronic mail services using the company's own computer. This can make economic sense if the facilities are available, (companies also like the security aspects of this sort of setup) however, contact with electronic mail users outside the company may not be so easy.

There are many people who use data communications to send more than simply messages quickly over long distances. For many people, text is a perishable commodity, useless if delayed. Journalists are an obvious example, and so are translators. Much translation is done for commercial organisations with short deadlines. If text has to be sent by post over long distances to reach a translator with the right specialist knowledge, then much of the time available can be lost. Using data communications it is possible to send text anywhere in the world, have it translated and receive it back in the same day. An added advantage is that the text received back is already in the form of data, removing the need to re-key, or further proof read.

Other services are springing up to take advantage of communications.

There are transcription services who will accept manuscript or audio cassettes, type them up and then return the results to the customer's mailbox. In the opposite direction they can accept text through the mailbox, a letter and mailing list perhaps, which they will then print out on a high quality printer, and post.

Some typesetters and printers will now accept text sent through electronic mail. There are also laser printing services which will print out text files to a very high standard at reasonable cost. As well as saving time, the communications link overcomes any problems of incompatible equipment.

Appendix 1

Glossary

Alignment	Arranging text and/or a graphic to line up at one horizontal or vertical line
Alphanumeric characters	A full set of letters and numbers, including some punctuation marks
Ampersand	The & sign which is used to represent the word <i>and</i>
Aperture	The variable sized opening in the lens of a camera or enlarger, which controls the brightness of the image formed
Artwork	Individual illustrations, or complete material ready for reproduction
Ascender	The part of some lower case letters which rises above the <i>x height</i> (<i>qv</i>) – eg the upper strokes of ‘b’ or ‘k’
AVA	Short for audio visual aids
Back-up	<ol style="list-style-type: none">1. To print on the second side of a piece of paper.2. To make a copy of a computer disk to guard against accidentally losing the information.
Banner	A heading in a large type size across the full width of a page
Bit graphics	Computer graphics, or even text, which is stored in the computer’s memory as <i>bits</i> of information, each representing a finite dot

Body	Text forming the main part of a work, as opposed to headings or illustrations
Bullet	A large dot used to add emphasis to the items of a list (●)
Camera ready	Artwork, copy or paste-up that is ready for reproduction
Column	Text or illustrations forming part of a vertically divided page
Continuous tone	An illustration with an infinite range of tones from white to black through greys
Condensed	A typeface which is narrower than usual
Copy	Written or typed manuscript ready to be set for printing
CP/M	A standard computer operating system which allows programs to work on a variety of different computer models
Daisywheel printer	An impact printer which presses raised letters arranged around a (daisy) wheel through an inked ribbon onto the paper. These produce very high quality text, but are not as versatile as dot matrix printers
Default	A situation or setting which occurs if no other is actively selected
Descender	The part of a lower case letter that falls below the <i>x height</i> (<i>qv</i>), eg the lower strokes of 'p' or 'y'
Dot matrix	An impact printer which forms characters by a pattern of dots. A vertical row of electro-magnetically activated pins presses an inked ribbon onto the paper. The data defining the pattern required for each character is either stored in <i>read only memory</i> (ROM) in the printer, or else sent from the computer
Electronic mail	A method of sending electronic data between computers over telephone networks. A central

	computer is used to store the data until the recipient is ready to access it
Elite	A typeface which has 12 characters to the inch
Em	The width of an 'm' in a given typeface
Email	See electronic mail
Emulsion	The light sensitive surface on photographic material
En	The width of a lower case 'n' in a given typeface
Exposure	The amount of light allowed to fall on photo-sensitive material.
Footer	Similar output at the bottom of each page in a document, (eg showing a page number)
Font (also fount)	Complete set of letters and characters in one size and style of type
Galley proof	Text printed out into columns before splitting up into page lengths for pasting down
Golfball	The printing head of certain typewriters where the type is arranged around the surface of a ball
GSM (also g/m^2 or $\text{gm}-^2$)	Grammes per square metre, the usual measurement for paper weight and therefore thickness
Grid	Guide used to help ensure consistency of layout
Gripper	Small clamps which feed paper into printing presses. Allowance must be made for these when setting out artwork
Gutter	The clear space at the vertical outer edges of pages, or between a pair of pages
Halftone	A method of printing illustrations using a regular dot pattern to give an optical illusion of continuous tone. Areas of tint (qv) can be applied to a line illustration, or a photograph can be screened for reproduction
Hard return	A carriage return instruction inserted as a

	character into word processor text which remains effective even if the format is altered
Header	1. Page header (or <i>running header</i>). Text printed at the top of each page of a document. 2. File header. A set of information stored at the start of a word processor file which contains layouts, page header and footers, etc. 3. Screen header. Term used in <i>Fleet Street Editor Plus</i> to describe the status lines at the top of the screen display
Heading	A title which introduces an article, chapter or division. Usually set in a typeface which distinguishes it from the body of the type
Imposition	Arranging pages so that when combined and folded they will read continuously
Justification	The way that a line of type is spaced out and placed in the text. Left justified means that all line ends line up on the left. Right justified means that all full lines are the same length and line up on the right as well as the left (also known as aligned right, the command <i>Right Align</i> , +RA is used in LocoScript 2)
Landscape format	Where the width is greater than the height
Laterally reversed	Mirror image
Line illustration	An illustration that consists only of solid colour, (eg black) and white without gradations of tone
Lower case	The small letters in a font of type
Offset Litho(graphy)	A form of printing where the image is printed first onto an offset roller (the blanket), and then onto the paper. The image on the litho plate is <i>right reading</i>
Overhead projection transparency	A visual aid where the text or illustration is printed onto a transparent sheet of acetate (foil), for projection on an overhead projector (OHP)
Overlay	1. Sheet placed over artwork with matter to be

	over printed in a different colour or with instructions to the printer. 2. Second or subsequent layers of an overhead projector foil with extra information. 3. Parts of a large computer program which are loaded from disk to memory as and when needed during program run time. This allows complex programs to be used, even if all the parts cannot be fitted into the computer's <i>transient</i> program area at the same time
Oversize	Text or artwork made larger than it will be finally reproduced
Page description language	A method of storing a page in a computer's memory in such a way that it can be flexibly converted into printing instructions
Page dummy	Outline page layout, designed in advance to help consistency, subsequently filled with text and illustrations as required
Pagination	The numbering of pages in a book or pamphlet
Paste-up	A technique whereby text and illustrations are pasted down onto a sheet of paper or card ready for photocopying or platemaking
Pica	1. A unit of measurement used in typesetting equal to 12 points (<i>qv</i>). Usually used to describe long measurements, eg the width of a page. 2. A typeface with 10 characters to the inch
Point	The unit of measurement used in typesetting to describe the size of typefaces and the distance between lines of type. One point approximately equals $\frac{1}{72}$ nd of an inch
Portrait format	Where the vertical dimension is greater than the horizontal
Proportional spacing	Spacing characters according to their different widths
Ragged	Not justified (eg right justified, left ragged)

Reverse out	Make text or an illustration appear white on a black or coloured background
Right align	Right justified (see Justification)
Right reading	Copy that reads as normal – ie not laterally reversed, nor upside-down
Roman	Normal weight upright type, as opposed to italic or bold
S/S	Same size, meaning that material is to be produced without enlargement or reduction
Sans serif	Font styles which do not have serifs (<i>qv</i>). This gives a fresh modern appearance which makes good headings, but is more difficult to read in body text
Separated artwork	Black and white artwork destined to be printed in more than one colour. The information for each colour is held on separate sheets. Registration marks must be provided for the printer at the corners of the pages so that the printed images can be accurately positioned over each other
Serif	Small lines at the end of the strokes of a character. These actually aid legibility
Snap to guide	Provision in a desktop publishing program that ensures that text and illustrations conform accurately to a pre-defined grid
Soft return	An end of line instruction inserted in word processor text by the program, and which is changed automatically if there is any alteration in the wording or format. (See also hard return)
Tint	A regular dot or line pattern to give the optical illusion of a lighter shade than solid ink. Referred to by the pitch of the pattern (eg <i>100 lines per inch</i>), and by percentage of dot to white paper (eg 20%)
Typeface	The design and size of a <i>font</i>

Unjustified	Text with standard spacing so that lines in a column are of different lengths. These can be <i>ranged left</i> with right edge ragged, <i>ranged right</i> with left edge ragged, or <i>centred</i> with both edges ragged
Word spacing	Spaces placed between words to adjust the line length
Word wrap	Automatic action of word processor and text editor programs to move words that are too long to fit at the end of the present line to the beginning of the next one
WYSIWYG	<i>What you see is what you get.</i> Programs which accurately show on the screen what will be printed out. No PCW word processors are truly <i>wysiwyg</i> , but most graphics programs are
x-height	The height of a lower case letter with neither an <i>ascender</i> nor a <i>descender</i>

Appendix 2

Further Reading

The Alternative Printing Handbook

Chris Treweek and Jonathan Zeitlyn
(with the Islington Bus Company)
Penguin Books 1983
ISBN 0 14 046 509X

An excellent book full of useful practical advice on getting things into print.

Amstrad PCW Magazine

169 Kings Road
Brentwood
Essex CM14 4EF
Tel 0277 234459

The official Amstrad PCW magazine.

Computing with the Amstrad PCW

Database Publications Ltd
Europa House
68 Chester Road
Hazel Grove
Stockport
Cheshire SK7 5NY
Tel 061 456 8383

Monthly magazine introduced in June 1987 by Database Publications, who also offer magazines on many other computers, software (including

The Desktop Publisher), and *Microlink*, an electronic mail service based on Telecom Gold.

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Consulting Editor — John Laing

Elbury Press

ISBN 0 85223 301 9

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Hart's rules for compositors and readers at the University Press

Oxford University Press

ISBN 0 19 212983 X

Fascinating (and useful) set of rules for correctly setting out English and foreign language text.

Using the Amstrad Word Processor

Michael Milan

NCC Publications 1986

ISBN 0 85012 567 7

Most of the things that you need to know about using the Amstrad PCW as a word processor, as a computer and as a communications terminal.

Visual Aids and Photography in Education

Michael J. Langford

Focal Press 1973

ISBN 0 240 50717 7

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Your Amstrad PCW

Focus Magazines

Greencoat House

Francis Street

London SW1P 1DG

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Monthly magazine introduced October 1987.

8000 Plus

Future Publishing Ltd

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Computing 001.64**Design 760****Journalism 070****Photography 770****Printing 686****Visual aids 371.335****Word processing 001.64**

Appendix 3

Noticeboard – a BASIC program

Noticeboard is a BASIC program that can be used for several purposes. It will print out text on the PCW standard printer in several large sizes either as headlines that you can paste up onto artwork, as text for OHP foils, or as notices to go on notice boards. It features proportional spacing, left and right justification, and the ability to define special characters and logos.

```
-----
H E A D L I N E R   for the PCW 8256 / 8512
© Stephen Milan 1987
-----
```

```
-----
Width of left margin (inches)           1
Line length (inches)                    4
Text width (x1, x2, x3, x4)             x1
Line spacing (7/72nds of an inch)       1
Single, double, or triple strike (1, 2, 3) 3
Layout      1   Right margin ragged
              2   Left margin ragged
              3   Centred text
              4   Justified text           4

Text
This is pleasant, sure, to see one's name in print; A book's a book, although there's nothing
in it.

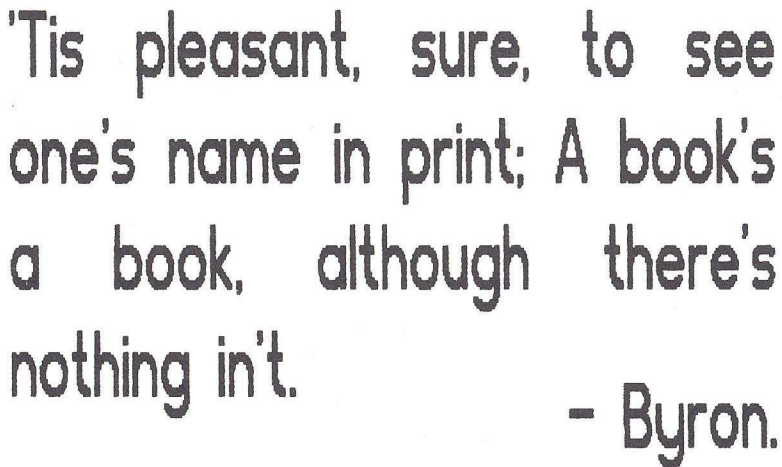
Is this correct? (Yes, No, Quit)         y
Please wait
```

Figure 1 Data entry screen

USING NOTICEBOARD

Each time that you run the program you are invited to enter details of

how you wish the text to be printed out. Details of the left margin and line length are asked for in inches as this conveniently corresponds to the markings on the PCW printer's bail bar. Once the formatting details have been completed, the text can be entered, up to 225 characters long. Check these carefully before confirming that they are correct, because it will be a long time before you see them down on paper. If the last paragraph of a long notice were to be entered incorrectly it could be very annoying. Once the program starts to print out, the best thing to do is – go and have a cup of tea! An example of a completed print-out is given in Figure 2.



'Tis pleasant, sure, to see
one's name in print; A book's
a book, although there's
nothing in't.
- Byron.

Figure 2 Sample print out

HOW NOTICEBOARD WORKS

By far the greater part of the program is the data which defines the different characters. These are printed out in high resolution graphics, four normal characters high. Each one is composed of a lot of pixels, which is why the final results look fairly neat, but this also means that they need a lot of data. You will not have to key in all the data at once, just those letters and numbers that you need, so you can enter the program by instalments if you are impatient to get going. If you do this, then the important line to get correct is 370. This contains the string variable `char$`, which is the list of characters for which there are data statements, in the same order (the “character would be significant to the BASIC program, so it has to be entered as `CHR$34`). When the

program is running, it searches along this line for each of the characters to be printed out in turn, and is then directed to the appropriate data. If you only key in a few of the data statements, make sure that `char$` corresponds to these.

The characters finally printed out do not have to be exactly the same as the letters on the keys. Thus you can define special characters or logos if you wish. The last three characters in the data are examples which can be called by typing `(c)` (`EXTRA + C`), `<` and `>`. There are also separate opening and closing inverted commas (quotation marks), the closing ones are called by pressing the `/` (slash) key.

ENTERING A BASIC PROGRAM

To use BASIC, load up CP/M, and with the CP/M disk still in the drive type:

```
basic [RETURN]
```

Mallard BASIC will then load into the computer. Remove the CP/M disk and use a different disk to store the program. Do not use a disk that has LocoScript files on it.

This program may seem rather daunting to enter into the computer, but it works very well and can be quite useful. As Mallard BASIC (supplied with the PCW) relies on GOTOs and GOSUBs, line numbers in the first part of the program are significant and must be entered as shown in the listing. The listing has been printed out to fill the page of the book, and not as it will appear on the screen. Some lines in the listing are wider than the pages, remember not to press [RETURN] until just before the next new line number. Be careful to distinguish between *space%*, *spaces%*, *spacing%*, and *spacelen%*, *text%* and *text\$*, *data%* and *data\$*. Also remember that *data%* and *data%(subscript)* are different variables.

As you enter the program, save it to disk frequently to avoid disaster. Save it by typing:

```
save "noticebd" [RETURN]
```

It's a good idea to save it on more than one disk at a time. Files accidentally erased under CP/M cannot be recovered.

To reload the program if you are starting another session, load up CP/M and BASIC as above, place the disk that you have saved Noticeboard onto in the drive and type:

```
load "noticebd"[RETURN]
```

Once loaded into the computer, the program can be used by just typing:

```
run[RETURN]
```

CHARACTER DEFINITIONS

The characters are defined as follows:

- the data is divided up into sections of five lines of data, each corresponding to one character;
- the first line of each data section declares the width of that character in pixels, and each of the following four lines contains that number of bytes (the maximum width of any character is **80** pixels);
- each character is defined as four horizontal rows, in the order:
 - ascenders
 - x-height (upper half)
 - x-height (lower half)
 - descenders

(as no ordinary character has both ascenders and descenders, the first, last, or possibly both of those lines will consist of **00**s, and they *must* contain the correct number of those);

- each row is made up of a series of columns, eight pixels high by one pixel wide;
- each of the columns is defined as 1 byte, worked out as the binary pattern, starting from the top, but expressed in hexadecimal notation.

The program prints out quite slowly, particularly in triple strike mode, but the results can look good. If you want to make up long notices, print out the different paragraphs separately. By changing between different coloured ribbons you could have a red heading with black body text for instance.

```

10 PRINT;PRINT
20 PRINT "-----"
30 PRINT
40 PRINT "N O T I C E B O A R D   for the PCW 8256 / 8512"
50 PRINT
60 PRINT "@ Stephen Milan 1987"
70 PRINT
80 PRINT "-----"
90 PRINT
100 INPUT "Width of left margin (inches)           ",margin%
110 margin%=margin%*120
120 PRINT
130 INPUT "Line length (inches)                     ",pagewidth%
140 pagewidth%=pagewidth%*120
150 PRINT
160 INPUT "Text width (x1, x2, x3, x4)              x",width%
170 PRINT
180 INPUT "Line spacing (7/72nds of an inch)        ",linespacing%
190 PRINT
200 INPUT "Single, double, or triple strike (1, 2, 3) ",strike%
210 PRINT
220 PRINT "Layout      1   Right margin ragged"
230 PRINT "              2   Left margin ragged"
240 PRINT "              3   Centred text"
250 INPUT "              4   Justified text           ",option%
260 PRINT
270 PRINT "Text"
280 LINE INPUT "", text$
290 PRINT
300 INPUT "Is this correct? (Yes, No, Quit)         ",check$
310 IF UPPER$(LEFT$(check$,1))="N" THEN GOTO 10
320 IF UPPER$(LEFT$(check$,1))="Q" THEN END
330 PRINT
340 PRINT "Please wait";CHR$(27);"f";
350 ;
360 DIM space%(30),data%(960)
370 chars$="ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz1234567
890,, '-?!"+CHR$(34)+"/";;£#&<"

```

```
380 digits$="0123456789ABCDEF"
390 spacelen%=13
400 spacing%=3
410 WIDTH LPRINT 255
420 ;
430 REM ----- Print line-feed to pull paper taut -----
440 LPRINT CHR$(27);"A";CHR$(8)
450 ;
460 WHILE text$(<)" "
470 ;
480 REM ----- Make line up to maximum length -----
490 spaces%=0
500 linelength%=0
510 text%=1
520 IF MID$(text$,text%,1)<>" " THEN 570
530 spaces%=spaces%+1
540 linelength%=linelength%+(spacelen%+spacing%)*width%
550 space$(spaces%)=spacelen%*width%
560 GOTO 600
570 letter%=INSTR(chars$,MID$(text$,text%,1))
580 GOSUB 1610
590 linelength%=linelength%+(length%+spacing%)*width%
600 data$(text%)=linelength%
610 text%=text%+1
620 IF linelength%<pagewidth% AND text%<=LEN(text$)+1 THEN 520
630 ;
640 REM ----- Word-wrap -----
650 text%=text%-1
660 IF text%=LEN(text$)+1 OR spaces%=0 THEN 700
670 WHILE MID$(text$,text%,1)<>" "
680 text%=text%-1
690 WEND
700 line$=LEFT$(text$,text%-1)
710 text$=MID$(text$,text%+1)
720 ;
730 REM ----- Find final length of line -----
740 linelength%=data%(LEN(line$))
750 IF spaces%>0 THEN spaces%=spaces%-1
```



```

760 ;
770 REM ----- Format line;
780 REM      option% = 1 - right margin ragged
790 REM      option% = 2 - left margin ragged
800 REM      option% = 3 - text centred
810 REM      option% = 4 - text justified      -----
820 deficit%=pagewidth%-linelength%
830 IF option%=1 THEN leadingspaces%=0;GOTO 990
840 IF option%=2 THEN leadingspaces%=deficit%;GOTO 990
850 IF option%=3 THEN leadingspaces%=deficit%/2;GOTO 990
860 ;
870 REM ----- Justify -----
880 leadingspaces%=0
890 IF spaces%=0 OR deficit%=0 OR text$="" THEN 990
900 space%=1
910 FOR addspaces%=1 TO deficit%
920 space%(space%)=space%(space%)+1
930 space%=space%+1
940 IF space%>spaces% THEN space%=1
950 NEXT addspaces%
960 linelength%=pagewidth%
970 ;
980 REM - Find data for line of text, incl, margin and leading spaces -
990 FOR print%=1 TO 4
1000 store%=0
1010 ;
1020 REM ----- Margin and leading spaces -----
1030 totallength%=margin%+leadingspaces%+linelength%
1040 FOR byte%=1 TO margin%+leadingspaces%
1050 store%=store%+1;data%(store%)=0
1060 NEXT byte%
1070 ;
1080 space%=0
1090 FOR text%=1 TO LEN(line$)
1100 IF MID$(line$,text%,1)<>" " THEN 1200
1110 ;
1120 REM ----- Proportional space -----
1130 space%=space%+1

```

```
1140 FOR byte%=1 TO space%(space%)
1150 store%=store%+1;data%(store%)=0
1160 NEXT byte%
1170 GOTO 1330
1180 ;
1190 REM ----- Character -----
1200 letter%=INSTR(chars$,MID$(line$,text%,1))
1210 GOSUB 1610
1220 FOR find%=1 TO print%
1230 READ data$
1240 NEXT find%
1250 FOR byte%=0 TO length%-1
1260 data%=16*(INSTR(digits$,MID$(data$,byte%%3+1,1))-1)
1270 data%=data%+INSTR(digits$,MID$(data$,byte%%3+2,1))-1
1280 FOR repeat%=1 TO width%
1290 store%=store%+1;data%(store%)=data%
1300 NEXT repeat%,byte%
1310 ;
1320 REM ----- Spacing between characters -----
1330 FOR byte%=1 TO spacing%%width%
1340 store%=store%+1;data%(store%)=0
1350 NEXT byte%
1360 ;
1370 NEXT text%
1380 ;
1390 REM ----- Print line -----
1400 FOR pass%=1 TO strike%
1410 LPRINT CHR$(27);"L";CHR$(totallength% MOD 256);CHR$(INT
    (totallength%/256));
1420 FOR byte%=1 TO totallength%
1430 LPRINT CHR$(data%(byte%));
1440 NEXT byte%
1450 ;
1460 REM - Line-feeds, both between lines and for multiple strikes -
1470 IF strike%=1 THEN LPRINT CHR$(27);"A";CHR$(8);
1480 IF strike%>1 AND pass%<strike% THEN LPRINT CHR$(27);"3";CHR$(1);
1490 IF strike%>1 AND pass%=strike% THEN LPRINT CHR$(27);"3";
    CHR$(25-strike%);
```

```
1500 LPRINT
1510 NEXT pass%
1520 NEXT print%
1530 ;
1540 LPRINT CHR$(27);"A";CHR$(8);
1550 IF linespacing%>0 THEN FOR newline%=1 TO linespacing%;LPRINT;NEXT
    newline%
1560 WEND
1570 PRINT CHR$(27);"I";CHR$(27);"I";CHR$(27);"I";CHR$(27);"e";CHR$(13)
1580 END
1590 ;
1600 REM ----- Find length of letter -----
1610 RESTORE
1620 found%=1
1630 WHILE found%<letter%
1640 READ len%,data$,data$,data$,data$
1650 found%=found%+1
1660 WEND
1670 READ length%
1680 RETURN
1690 ;
1700 REM A
1710 DATA 19
1720 DATA "00 00 00 00 00 03 1F FF FC E0 FC FF 1F 03 00 00 00 00 00"
1730 DATA "00 00 01 0F 7F FF F1 81 01 01 01 81 F1 FF 7F 0F 01 00 00"
1740 DATA "07 3F FF F8 C0 C0 C0 C0 C0 C0 C0 C0 C0 C0 F8 FF 3F 07"
1750 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
1760 ;
1770 REM B
1780 DATA 17
1790 DATA "FF FF FF E0 E0 E0 E0 E0 E0 E0 F0 F8 7F 3F 0F 00"
1800 DATA "FF FF FF 38 38 38 38 38 38 38 38 78 FC FE EF 87 01"
1810 DATA "FF FF FF 07 07 07 07 07 07 07 07 07 0F 1F FE FC F0"
1820 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
1830 ;
1840 REM C
1850 DATA 19
1860 DATA "00 07 1F 3F 7E 78 F0 F0 E0 E0 E0 E0 F0 F0 78 7E 3E 1E 06"
```

```

1870 DATA "FF FF FF C3 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
1880 DATA "00 E0 F8 FC 7E 1E 0F 0F 07 07 07 07 0F 0F 1E 7E 7C 78 60"
1890 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
1900 ;
1910 REM D
1920 DATA 17
1930 DATA "FF FF FF E0 E0 E0 E0 E0 E0 E0 F0 F0 78 7E 3F 1F 07"
1940 DATA "FF FF FF 00 00 00 00 00 00 00 00 00 00 00 FF FF FF"
1950 DATA "FF FF FF 07 07 07 07 07 07 07 0F 0F 1E 7E FC F8 E0"
1960 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
1970 ;
1980 REM E
1990 DATA 17
2000 DATA "FF FF FF E0 E0 E0 E0 E0 E0 E0 E0 E0 E0 E0 E0 E0 E0"
2010 DATA "FF FF FF 38 38 38 38 38 38 38 38 38 38 38 00 00 00"
2020 DATA "FF FF FF 07 07 07 07 07 07 07 07 07 07 07 07 07 07"
2030 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
2040 ;
2050 REM F
2060 DATA 17
2070 DATA "FF FF FF E0 E0 E0 E0 E0 E0 E0 E0 E0 E0 E0 E0 E0 E0"
2080 DATA "FF FF FF 38 38 38 38 38 38 38 38 38 38 38 00 00 00"
2090 DATA "FF FF FF 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
2100 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
2110 ;
2120 REM G
2130 DATA 19
2140 DATA "00 07 1F 3F 7E 78 F0 F0 E0 E0 E0 E0 F0 F0 78 7E 3E 1E 06"
2150 DATA "FF FF FF C3 00 00 00 00 00 00 0E 0E 0E 0E 0E 0E 0F 0F 0F"
2160 DATA "00 E0 F8 FC 7E 1E 0F 0F 07 07 07 07 0F 0F 1E 7E FF FF FF"
2170 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
2180 ;
2190 REM H
2200 DATA 17
2210 DATA "FF FF FF 00 00 00 00 00 00 00 00 00 00 00 FF FF FF"
2220 DATA "FF FF FF 38 38 38 38 38 38 38 38 38 38 38 FF FF FF"
2230 DATA "FF FF FF 00 00 00 00 00 00 00 00 00 00 00 FF FF FF"
2240 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"

```



```
2250 ;
2260 REM I
2270 DATA 3
2280 DATA "FF FF FF"
2290 DATA "FF FF FF"
2300 DATA "FF FF FF"
2310 DATA "00 00 00"
2320 ;
2330 REM J
2340 DATA 17
2350 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 FF FF FF"
2360 DATA "01 01 01 00 00 00 00 00 00 00 00 00 00 00 FF FF FF"
2370 DATA "E0 F8 FC 7E 1E 0F 0F 07 07 07 0F 0F 1E 7E FC F8 E0"
2380 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
2390 ;
2400 REM K
2410 DATA 19
2420 DATA "FF FF FF 00 00 00 01 03 07 0F 1E 3C 78 F0 E0 C0 80 00 00"
2430 DATA "FF FF FF 3C 78 FC FE CF 87 03 01 00 00 00 00 00 00 00"
2440 DATA "FF FF FF 00 00 00 00 00 80 C0 E0 F0 78 3C 1E 0F 07 03 01"
2450 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
2460 ;
2470 REM L
2480 DATA 17
2490 DATA "FF FF FF 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
2500 DATA "FF FF FF 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
2510 DATA "FF FF FF 07 07 07 07 07 07 07 07 07 07 07 07 07 07"
2520 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
2530 ;
2540 REM M
2550 DATA 21
2560 DATA "FF FF FF FC FF 1F 03 00 00 00 00 00 00 00 03 1F FF FC FF FF
FF"
2570 DATA "FF FF FF 00 80 F0 FE 7F 0F 01 00 01 0F 7F FE F0 80 00 FF FF
FF"
2580 DATA "FF FF FF 00 00 00 00 C0 F8 FF 3F FF F8 C0 00 00 00 00 FF FF
FF"
```

```
2590 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
      00"
2600 ;
2610 REM N
2620 DATA 17
2630 DATA "FF FF FF F8 FE 3F 0F 03 00 00 00 00 00 00 FF FF FF"
2640 DATA "FF FF FF 00 00 80 E0 F8 FE 3F 0F 03 00 00 FF FF FF"
2650 DATA "FF FF FF 00 00 00 00 00 00 80 E0 F8 FE 3F FF FF FF"
2660 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
2670 ;
2680 REM O
2690 DATA 19
2700 DATA "00 07 1F 3F 7E 78 F0 F0 E0 E0 E0 F0 F0 78 7E 3F 1F 07 00"
2710 DATA "FF FF FF C3 00 00 00 00 00 00 00 00 00 00 00 C3 FF FF FF"
2720 DATA "00 E0 F8 FC 7E 1E 0F 0F 07 07 07 0F 0F 1E 7E FC F8 E0 00"
2730 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
2740 ;
2750 REM P
2760 DATA 17
2770 DATA "FF FF FF E0 E0 E0 E0 E0 E0 E0 E0 F0 F8 7F 3F 0F"
2780 DATA "FF FF FF 1C 1C 1C 1C 1C 1C 1C 1C 3C 7C F8 F0 C0"
2790 DATA "FF FF FF 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
2800 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
2810 ;
2820 REM Q
2830 DATA 19
2840 DATA "00 07 1F 3F 7E 78 F0 F0 E0 E0 E0 F0 F0 78 7E 3F 1F 07 00"
2850 DATA "FF FF FF C3 00 00 00 00 00 00 00 00 00 00 00 C3 FF FF FF"
2860 DATA "00 E0 F8 FC 7E 1E 0F 0F 07 07 07 4F EF FE 7E FC FE EF 06"
2870 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
2880 ;
2890 REM R
2900 DATA 17
2910 DATA "FF FF FF E0 E0 E0 E0 E0 E0 E0 E0 F0 F8 7F 3F 0F"
2920 DATA "FF FF FF 1C 1C 1C 1C 1C 1C 1E 1E 3F 7F FB F1 C0"
2930 DATA "FF FF FF 00 00 00 00 00 00 00 00 00 00 C0 FF FF 7F"
2940 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
2950 ;
```


[illegible]


```
3680 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
3690 DATA "07 1F 3F 7C 70 F0 E0 E0 E0 E0 F0 70 78 38 18"
3700 DATA "E0 F8 FC 3E 0E 0F 07 07 07 07 07 0F 0E 1E 1C 18"
3710 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
3720 ;
3730 REM d
3740 DATA 17
3750 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 FF FF FF"
3760 DATA "07 1F 3F 7C 70 F0 E0 E0 E0 E0 F0 70 7C FF FF FF"
3770 DATA "E0 F8 FC 3E 0E 0F 07 07 07 07 07 0F 0E 3E FF FF FF"
3780 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
3790 ;
3800 REM e
3810 DATA 17
3820 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
3830 DATA "07 1F 3F 7F 73 F3 E3 E3 E3 E3 F3 73 7F 3F 1F 07"
3840 DATA "E0 F8 FC BE 8E 8F 87 87 87 87 87 8F 8E 9E 9C 98 80"
3850 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
3860 ;
3870 REM f
3880 DATA 12
3890 DATA "00 00 00 03 0F 1F 3E 38 78 70 70 70"
3900 DATA "1C 1C 1C FF FF FF 1C 1C 1C 00 00 00"
3910 DATA "00 00 00 FF FF FF 00 00 00 00 00 00"
3920 DATA "00 00 00 00 00 00 00 00 00 00 00 00"
3930 ;
3940 REM g
3950 DATA 17
3960 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
3970 DATA "07 1F 3F 7C 70 F0 E0 E0 E0 E0 F0 70 7C FF FF FF"
3980 DATA "E0 F8 FC 3E 0E 0F 07 07 07 07 07 0F 0E 3E FF FF FF"
3990 DATA "00 18 1C 1E 0E 0F 07 07 07 07 07 0F 0E 3E FC F8 E0"
4000 ;
4010 REM h
4020 DATA 15
4030 DATA "FF FF FF 00 00 00 00 00 00 00 00 00 00 00 00"
4040 DATA "FF FF FF 7C 70 F0 E0 E0 E0 F0 70 7C 3F 1F 07"
4050 DATA "FF FF FF 00 00 00 00 00 00 00 00 00 00 FF FF FF"
```



```

4410 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
      00 00 00"
4420 ;
4430 REM n
4440 DATA 15
4450 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
4460 DATA "FF FF FF 7C 70 F0 E0 E0 E0 F0 70 7C 3F 1F 07"
4470 DATA "FF FF FF 00 00 00 00 00 00 00 00 00 00 FF FF FF"
4480 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
4490 ;
4500 REM o
4510 DATA 17
4520 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
4530 DATA "07 1F 3F 7C 70 F0 E0 E0 E0 E0 F0 70 7C 3F 1F 07"
4540 DATA "E0 F8 FC 3E 0E 0F 07 07 07 07 07 0F 0E 3E FC F8 E0"
4550 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
4560 ;
4570 REM p
4580 DATA 17
4590 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
4600 DATA "FF FF FF 7C 70 F0 E0 E0 E0 E0 F0 70 7C 3F 1F 07"
4610 DATA "FF FF FF 3E 0E 0F 07 07 07 07 07 0F 0E 3E FC F8 E0"
4620 DATA "FF FF FF 00 00 00 00 00 00 00 00 00 00 00 00 00"
4630 ;
4640 REM q
4650 DATA 17
4660 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
4670 DATA "07 1F 3F 7C 70 F0 E0 E0 E0 E0 F0 70 7C FF FF FF"
4680 DATA "E0 F8 FC 3E 0E 0F 07 07 07 07 07 0F 0E 3E FF FF FF"
4690 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 FF FF FF"
4700 ;
4710 REM r
4720 DATA 11
4730 DATA "00 00 00 00 00 00 00 00 00 00 00"
4740 DATA "FF FF FF 7C 70 F0 E0 E0 E0 E0 E0"
4750 DATA "FF FF FF 00 00 00 00 00 00 00 00"
4760 DATA "00 00 00 00 00 00 00 00 00 00"
4770 ;

```

[illegible]

[illegible]

```
5500 DATA "E0 E0 E0 E0 E0 E0 E1 E3 E7 EF FE FC F8 F0 E0"
5510 DATA "00 00 00 20 60 E0 E0 E0 F0 70 7C 3F 1F 07"
5520 DATA "18 1C 1E 0E 0F 07 07 07 07 0F 0E 3E FC F8 E0"
5530 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00"
5540 ;
5550 REM 4
5560 DATA 15
5570 DATA "00 00 00 00 00 03 0F 3F FF FF FF 00 00 00 00"
5580 DATA "00 03 0F 3F FD F1 C1 01 FF FF FF 01 01 01 01"
5590 DATA "C0 C0 C0 C0 C0 C0 C0 C0 FF FF FF C0 C0 C0 C0"
5600 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00"
5610 ;
5620 REM 5
5630 DATA 15
5640 DATA "FF FF FF E0 E0 E0 E0 E0 E0 E0 E0 E0 E0 E0"
5650 DATA "F8 F8 F8 70 F0 E0 E0 E0 E0 F0 70 7C 3F 1F 07"
5660 DATA "18 1C 1E 0E 0F 07 07 07 07 0F 0E 3E FC F8 E0"
5670 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00"
5680 ;
5690 REM 6
5700 DATA 16
5710 DATA "03 1F 3F 7C 70 F0 E0 E0 E0 E0 F0 70 78 38 18 00"
5720 DATA "FF FF FF 7C 70 F0 E0 E0 E0 E0 F0 70 7C 3F 1F 07"
5730 DATA "C0 F8 FC 3E 0E 0F 07 07 07 07 0F 0E 3E FC F8 E0"
5740 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
5750 ;
5760 REM 7
5770 DATA 15
5780 DATA "E0 E0 E0 E0 E0 E0 E0 E0 E0 E1 E7 FF FE F8 E0"
5790 DATA "00 00 00 00 00 01 07 1F 7E F8 E0 80 00 00 00"
5800 DATA "00 00 00 07 3F FF F8 C0 00 00 00 00 00 00 00"
5810 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
5820 ;
5830 REM 8
5840 DATA 16
5850 DATA "07 1F 3F 78 70 F0 E0 E0 E0 E0 F0 70 78 3F 1F 07"
5860 DATA "01 C7 EF FE 7C 7C 38 38 38 38 7C 7C FE EF C7 01"
5870 DATA "E0 F8 FC 1E 0E 0F 07 07 07 07 0F 0E 1E FC F8 E0"
```

```
5880 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
5890 ;
5900 REM 9
5910 DATA 16
5920 DATA "07 1F 3F 7C 70 F0 E0 E0 E0 E0 F0 70 7C 3F 1F 07"
5930 DATA "C0 F8 FC 3E 0E 0F 07 07 07 07 0F 0E 3E FF FF FF"
5940 DATA "00 18 1C 1E 0E 0F 07 07 07 07 0F 0E 3E FC F8 E0"
5950 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
5960 ;
5970 REM 0
5980 DATA 16
5990 DATA "07 1F 3F 7C 70 F0 E0 E0 E0 E0 F0 70 7C 3F 1F 07"
6000 DATA "FF FF FF 00 00 00 00 00 00 00 00 00 00 FF FF FF"
6010 DATA "E0 F8 FC 3E 0E 0F 07 07 07 07 0F 0E 3E FC F8 E0"
6020 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
6030 ;
6040 REM ,
6050 DATA 3
6060 DATA "00 00 00"
6070 DATA "00 00 00"
6080 DATA "07 07 07"
6090 DATA "00 00 00"
6100 ;
6110 REM ,
6120 DATA 3
6130 DATA "00 00 00"
6140 DATA "00 00 00"
6150 DATA "07 07 07"
6160 DATA "40 C0 80"
6170 ;
6180 REM '
6190 DATA 3
6200 DATA "E8 F8 F0"
6210 DATA "00 00 00"
6220 DATA "00 00 00"
6230 DATA "00 00 00"
6240 ;
6250 REM -
```

```
6260 DATA 15
6270 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
6280 DATA "38 38 38 38 38 38 38 38 38 38 38 38 38 38 38"
6290 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
6300 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
6310 ;
6320 REM ?
6330 DATA 17
6340 DATA "00 18 38 78 70 F0 E0 E0 E0 E0 E0 F0 70 7C 3F 1F 07"
6350 DATA "00 00 00 00 00 00 01 07 0F 0F 1E 1C 38 F8 F0 E0 80"
6360 DATA "00 00 00 00 00 00 C7 C7 C7 00 00 00 00 00 00 00"
6370 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
6380 ;
6390 REM !
6400 DATA 3
6410 DATA "FF FF FF"
6420 DATA "FF FF FF"
6430 DATA "C7 C7 C7"
6440 DATA "00 00 00"
6450 ;
6460 REM open quote "
6470 DATA 7
6480 DATA "78 F8 B8 00 78 F8 B8"
6490 DATA "00 00 00 00 00 00 00"
6500 DATA "00 00 00 00 00 00 00"
6510 DATA "00 00 00 00 00 00 00"
6520 ;
6530 REM close quote " (use /)
6540 DATA 7
6550 DATA "E8 F8 F0 00 E8 F8 F0"
6560 DATA "00 00 00 00 00 00 00"
6570 DATA "00 00 00 00 00 00 00"
6580 DATA "00 00 00 00 00 00 00"
6590 ;
6600 REM ;
6610 DATA 3
6620 DATA "00 00 00"
6630 DATA "1C 1C 1C"
```



```
6640 DATA "07 07 07"
6650 DATA "00 00 00"
6660 ;
6670 REM ;
6680 DATA 3
6690 DATA "00 00 00"
6700 DATA "1C 1C 1C"
6710 DATA "07 07 07"
6720 DATA "40 C0 80"
6730 ;
6740 REM (pound sign)
6750 DATA 19
6760 DATA "00 00 00 07 1F 3F 7C 70 F0 E0 E0 E0 F0 70 78 38 18 00 00"
6770 DATA "73 73 73 FF FF FF 73 73 73 00 00 00 00 00 00 00 00"
6780 DATA "87 87 87 FF FF FF 87 87 87 07 07 07 07 07 0F 0E 1E 1C 18"
6790 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
6800 ;
6810 REM #
6820 DATA 17
6830 DATA "03 03 03 FF FF FF 03 03 03 03 03 03 FF FF FF 03 03 03"
6840 DATA "81 81 81 FF FF FF 81 81 81 81 81 81 FF FF FF 81 81 81"
6850 DATA "C0 C0 C0 FF FF FF C0 C0 C0 C0 C0 FF FF FF C0 C0 C0"
6860 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00"
6870 ;
6880 REM credits
6890 DATA 33
6900 DATA "20 21 21 21 20 20 21 20 20 20 20 00 F8 A8 A8 50 00 80 40 39
    40 80 20 20 20 20 20 20 20 20 20 20"
6910 DATA "C8 24 24 24 98 00 F8 44 00 38 54 54 30 00 7F 44 44 38 00 FC
    40 40 3C 00 38 54 54 30 00 7C 40 40 3C"
6920 DATA "00 00 00 00 00 FE 40 20 10 20 40 FE 00 3C 02 00 FC 02 00 1C
    22 22 3E 00 3E 20 20 1E 00 00 00 00 00"
6930 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
    00 00 00 00 00 00 00 00 00 00 00 00"
6940 ;
6950 REM hand (use >)
6960 DATA 24
```

```
6970 DATA "00 00 00 00 00 00 00 00 00 00 01 0E 08 07 00 00 00 00 00
    00 00 00 00"
6980 DATA "2A 55 40 40 7F 20 20 20 40 80 00 00 80 45 4A 4F 5A 5A 5B 54
    50 50 50 20"
6990 DATA "A0 50 10 10 F0 40 40 40 20 20 20 20 20 40 A0 E0 A0 C0 00 00
    00 00 00 00"
7000 DATA "00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
    00 00 00 00"
7010 ;
7020 REM PCW (use <>)
7030 DATA 24
7040 DATA "7F C0 9F A0 A0 A0 A0 A0 A0 A0 A0 A0 A0 A0 A0 9F 80 9E
    9E 9E C0 7F"
7050 DATA "FE 03 F9 05 05 05 05 05 05 05 05 05 05 05 05 05 F9 01 79
    79 79 03 FE"
7060 DATA "07 48 4A 49 4A 49 4A C9 4A 49 4A 49 4A 49 4A 49 CA 49 4A 49
    4A 49 48 07"
7070 DATA "E0 10 90 50 90 50 90 50 90 50 90 50 90 50 90 50 90 50 90
    90 50 10 E0"
```

Appendix 4

Useful Addresses

This information is offered without prejudice for readers' convenience, and does not imply endorsement of any service offered.

Advanced Memory Systems Ltd
166/170 Wilderspool Causeway
Warrington WA4 6QA
Tel 0925 413501

Suppliers of *Stop Press* and the *AMX* mouse.

Amsoft
PO Box 10
Roper Street
Pallion Industrial Estate
Sunderland
Tyne and Wear SR4 6SN
Tel 091 510 8787

Mail order and Amstrad User Club. Source of carbon ribbons.

Amstrad Consumer Electronics
Brentwood House
169 King's Road
Brentwood
Essex CM14 4EF
Tel 0277 228888

Manufacturers of *Amstrad* computers.

Arnor Ltd

118 Whitehorse Road
Croyden
Surrey CR0 2JF
Tel 01 684 8009

Suppliers of *Protext*.

Database Software

Europa House
68 Chester Road
Hazel Grove
Stockport
Cheshire SK7 5NY
Tel 061 480 0171

Suppliers of *The Desktop Publisher* and *Master Scan*.

Digital Research (UK) Ltd

Oxford House
Oxford Street
Newbury
Berks RG13 1JB
Tel 0635 35304

Suppliers of *DR Graph* and *DR Draw*.

Electric Studio Products Ltd

13 The Business Centre
Avenue One
Letchworth
Herts SG6 2HB
Tel 0462 895720

Suppliers of the *Electric Studio* mouse, *Art* and *Newsdesk International*.

Film Sales Ltd

145 Nathan Way
Woolwich Industrial Estate
London SE28 0BE
Tel 01 311 2000

Manufacturers of OHP film for use in dot-matrix printers.

Folex Ltd

19 Monkspath Business Park
Shirley
Solihull
West Midlands B90 4NY
Tel 021 744 9100

Manufacturers of OHP film for use in dot-matrix printers.

HSV Computer Services Ltd

40-42 New Market Square
Basingstoke
Hants RG21 1HS
Tel 0256 463507

Mail order source for true A4 continuous stationery and coloured ribbons.

KADO

PO Box 20
Ashford
Kent TW15 3QE
Tel 0784 252662

Fabric ribbon reinking service. If you telephone they will send you a stamped addressed envelope for you to send them your old ribbon.

Locomotive Software Ltd

Allen Court
Dorking
Surrey RH4 1YL
Tel 0306 887902

Suppliers of *LocoScript*, *LocoSpell* and *LocoMail*.

MicroLink

Database Publications
Europa House
68 Chester Road
Stockport
Cheshire SK7 5NY
Tel 061 456 8383

Electronic mail service.

Mirrorsoft Ltd

Maxwell House
74 Worship Street
London EC2A 2EN
Tel 01 377 4645

Suppliers of *Fleet Street Editor Plus*.

Tasman Software

Springfield House
Hyde Terrace
Leeds LS2 9LN
Tel 0532 438301

Suppliers of *Tasword 8000*, *Tasprint 8000* and *Tas-Sign*.

Telecom Gold

60-68 St Thomas Street
London SE1 3QU
Tel 01 403 6777

Electronic mail service.

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Oxford Road
Manchester M1 7ED

Phone: 061 228 6333
Telex: 668962
Fax: (Gps 2 & 3) 061 228 2579

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Desktop Publishing with the Amstrad PCW

by Michael Milan @ £9.50 each £

Using the Amstrad Word Processor

by Michael Milan @ £8.50 each £

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DESKTOP PUBLISHING WITH THE AMSTRAD PCW

The Amstrad PCW 8256/8512 Word Processor is the best-selling cheap personal computer for individuals and small businesses. Most owners use it for word processing, to arrange ideas, to correct errors without retyping the rest of the text, and to modify text with the minimum of effort.

Desktop Publishing (DTP) takes these activities a stage further: as well as helping in the arrangement of ideas, it also allows the user to arrange text and illustrations on the page for the most effective presentation. Desktop Publishing is usually taken to refer to hardware and software packages which incorporate everything that is necessary to produce text and illustrations using a computer. This book takes a less purist approach. As well as looking at the integrated DTP packages now available for the Amstrad PCW, it suggests ways of enhancing any material produced on the Amstrad intended for duplication, ways of including illustrations, and of generating visual aids. Throughout the book there are suggestions for embellishing the output with whatever methods are available and appropriate.

The Amstrad Word Processor can be used to produce output as diverse as parish magazines or overhead projection transparencies. Busy teachers, would-be press barons and many others will find useful advice in this book.

Michael Milan has written three other successful books for NCC Publications:

Using the Amstrad Word Processor
A Young Person's Guide to BBC Basic
Disk Drive Projects for Micros

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ISBN 0-85012-636-3

